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Diploma
Examinations
Program

Provincial Report

June 1989 Administration

Students
First !

Student Evaluation
and Records

Alberta
EDUCATION

September 1989

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PROVINCIAL REPORT
JUNE 1989 ADMINISTRATION

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MESSAGE FROM THE DIRECTOR

On behalf of the Student Evaluation and Records Branch, I am pleased to present the *Provincial Report* of the results achieved for the June 1989 diploma examinations administration.

The *Provincial Report* is published twice a year following the January and June administrations of examinations in the Grade 12 subjects of English 30, English 33, Social Studies 30, Mathematics 30, Biology 30, Chemistry 30, and Physics 30. It is a technical report of student results presented as a provincial aggregate. Confidential results aggregated at the jurisdiction, school, and instructional group levels are issued separately and are best interpreted by school boards, school administrators, and teachers, within the broad context of these provincial figures. The purpose of these reports is to assist policymakers and educators in reviewing the effectiveness of their programs and in reinforcing instructional successes already achieved.

Provincial results for the June 1989 administration show that overall student performance remains at a very satisfactory level. The provincial pattern of results is consistent with previous examination administrations, and the percentage of students achieving the acceptable standard and the standard of excellence remains high.

Section 1 of the *Provincial Report* provides a summary of results for students who earned both a school-awarded mark and a diploma examination mark. In addition, totals for January and June are presented in comparison with 1988 figures. Detailed results for each subject are reported in sections 2 to 8. Section 9, new to this report, presents results for those students who wrote French translations of examinations. Section 10, another new section, analyses student achievement by gender. Subgroup results are compared in Section 11.

I encourage readers to consult Appendix A, Guidelines for Interpreting and Using the Results of the Diploma Examinations, when developing conclusions based on figures contained in this report. Detailed information about the Grade 12 Diploma Examinations Program is available in the *General Information Bulletin,* in the "Information for Students" brochure, and in the examination information bulletins published annually for each subject. Appendix B describes the standard-setting process, and Appendix C outlines the diploma examination development process.

The staff at the Student Evaluation and Records Branch have tried to make the *Provincial Report* more readable and more informative. We hope you like these improvements. Please let us know your opinion by completing the questionnaire at the end of this document.

Finally, I wish to express a special appreciation to those teachers, principals, and superintendents who shared their experience and expertise with the Student Evaluation and Records Branch during the rigorous examination development and marking processes. Your dedication to those tasks and to making certain that test conditions were uniform has once again ensured that students receive a fair and equitable evaluation of their achievement through diploma examinations.

F Horvath
Frank G. Horvath, Director

Students
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Student Evaluation
and Records

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CONTENTS

PAGE

Section 1: Summary of Diploma Examination Results 1

Section 2: English 30 Diploma Examination Results 7

Section 3: English 33 Diploma Examination Results 17

Section 4: Social Studies 30 Diploma Examination Results 27

Section 5: Mathematics 30 Diploma Examination Results 37

Section 6: Biology 30 Diploma Examination Results 47

Section 7: Chemistry 30 Diploma Examination Results 57

Section 8: Physics 30 Diploma Examination Results 67

Section 9: Diploma Examination French Translation Results 77

Section 10: Student Results by Gender 85

Section 11: Results for Population Subgroups 89

Appendix A: Guidelines for Interpreting and Using the Results of the Diploma Examinations 107

Appendix B: Standards for Diploma Examinations 112

Appendix C: Diploma Examination Development Process 113

Diploma Examinations Program: *Provincial Report* Questionnaire end page

---

LIST OF FIGURES

FIGURE PAGE

SECTION 1

1-1 Percentage of Students Achieving Acceptable Standard June 1989 1

1-2 Percentage of Students Achieving Standard of Excellence June 1989 1

1-3 Number of Examinations Written June 1989 2

1-4 Number of Examinations Written January and June Combined 1988, 1989 2

1-5 English 30: Letter Grade Distributions As a Percentage of Students Writing 3

1-6 English 33: Letter Grade Distributions As a Percentage of Students Writing 3

1-7 Social Studies 30: Letter Grade Distributions As a Percentage of Students Writing 3

1-8 Mathematics 30: Letter Grade Distributions As a Percentage of Students Writing 3

1-9 Biology 30: Letter Grade Distributions As a Percentage of Students Writing 4

1-10 Chemistry 30: Letter Grade Distributions As a Percentage of Students Writing 4

1-11 Physics 30: Letter Grade Distributions As a Percentage of Students Writing 4

SECTION 9

9-1 Percentage of Students Achieving Acceptable Standard French Translations, June 1989 78

9-2 Percentage of Students Achieving Standard of Excellence French Translations, June 1989 78

SECTION 9 (continued)

9-3 Social Studies 30, French Translation
Letter Grade Distributions As a Percentage of Students Writing . . . 79

9-4 Mathematics 30, French Translation
Letter Grade Distributions As a Percentage of Students Writing . . . 80

9-5 Biology 30, French Translation
Letter Grade Distributions As a Percentage of Students Writing . . . 81

9-6 Chemistry 30, French Translation
Letter Grade Distributions As a Percentage of Students Writing . . . 82

9-7 Physics 30, French Translation
Letter Grade Distributions As a Percentage of Students Writing . . . 83

SECTION 10

10-1 Percentage of Students Achieving Acceptable Standard
By Gender, for Each Subject 86

10-2 Percentage of Students Achieving Standard of Excellence
By Gender, for Each Subject 86

LIST OF TABLES

TABLE PAGE

SECTION 1

1-1 Averages of Student Marks in Diploma Examination Courses June 1989 Examination Administration Compared with June 1988 Final Blended Mark 5

1-2 Distribution of Student Marks in Diploma Examination Courses Combined January and June 1989 Examination Administrations . . . 6

SECTION 2

2-1 English 30: Percentage of Students Achieving Standards 7

2-2 English 30: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores 8

2-3 English 30: Written-Response and Multiple-Choice Raw Score Totals 8

2-4 English 30: Part A: Written Response Diploma Examination Blueprint 9

2-5 English 30: Part A: Written Response Minor Assignment: Personal Response to Literature Percentage Distribution of Scores 10

2-6 English 30: Part A: Written Response Major Assignment: Literature Composition Percentage Distribution of Scores 11

2-7 English 30: Part B: Reading (Multiple Choice) Diploma Examination Blueprint 12

2-8 English 30: Part B: Reading (Multiple Choice) Raw Score Results 13

2-9 English 30: Results for Individual Multiple-Choice Questions 14

TABLE PAGE

SECTION 3

3-1 English 33: Percentage of Students Achieving Standards 17

3-2 English 33: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores 18

3-3 English 33: Written-Response and Multiple-Choice Raw Score Totals 18

3-4 English 33: Part A: Written Response Diploma Examination Blueprint 19

3-5 English 33: Part A: Written Response Section I: Personal Response to Literature Percentage Distribution of Scores 20

3-6 English 33: Part A: Written Response Section II: Functional Writing Percentage Distribution of Scores 21

3-7 English 33: Part A: Written Response Section III: Response to Visual Communication Percentage Distribution of Scores 22

3-8 English 33: Part B: Reading (Multiple Choice) Diploma Examination Blueprint 23

3-9 English 33: Part B: Reading (Multiple Choice) Raw Score Results 24

3-10 English 33: Results for Individual Multiple-Choice Questions 25

TABLE PAGE

SECTION 4

4-1 Social Studies 30: Percentage of Students Achieving Standards 27

4-2 Social Studies 30: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores 28

4-3 Social Studies 30: Written-Response and Multiple-Choice Raw Score Totals 28

4-4 Social Studies 30: Part A: Multiple Choice Diploma Examination Blueprint 29

4-5 Social Studies 30: Part A: Multiple Choice Raw Score Results 30

4-6 Social Studies 30: Results for Individual Multiple-Choice Questions . . 32

4-7 Social Studies 30: Part B: Written Response Diploma Examination Blueprint 33

4-8 Social Studies 30: Part B: Written Response Percentage Distribution of Scores 34

SECTION 5

5-1 Mathematics 30: Percentage of Students Achieving Standards 37

5-2 Mathematics 30: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores 38

5-3 Mathematics 30: Written-Response and Machine-Scored Raw Score Totals 39

5-4 Mathematics 30: Diploma Examination Blueprint 40

TABLE PAGE

SECTION 5 (continued)

5-5 Mathematics 30: Raw Score Averages for Reporting Categories 41

5-6 Mathematics 30: Raw Score Averages for Cognitive Levels 42

5-7 Mathematics 30: Results for Machine-Scored Multiple-Choice Questions 43

5-8 Mathematics 30: Results for Machine-Scored Open-Ended Questions 44

5-9 Mathematics 30: Distribution of Marks for Written-Response Questions 45

5-10 Mathematics 30: Average Marks for Written-Response Questions 45

SECTION 6

6-1 Biology 30: Percentage of Students Achieving Standards 47

6-2 Biology 30: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores 48

6-3 Biology 30: Written-Response and Multiple-Choice Raw Score Totals 49

6-4 Biology 30: Diploma Examination Blueprint 50

6-5 Biology 30: Raw Score Averages for Reporting Categories 51

6-6 Biology 30: Raw Score Averages for Cognitive Levels 52

6-7 Biology 30: Results for Individual Multiple-Choice Questions 53

6-8 Biology 30: Distribution of Marks for Written-Response Questions 54

6-9 Biology 30: Average Marks for Written-Response Questions 54

TABLE PAGE

SECTION 7

7-1 Chemistry 30: Percentage of Students Achieving Standards 57

7-2 Chemistry 30: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores 58

7-3 Chemistry 30: Written-Response and Multiple-Choice Raw Score Totals 59

7-4 Chemistry 30: Diploma Examination Blueprint 60

7-5 Chemistry 30: Raw Score Averages for Reporting Categories 61

7-6 Chemistry 30: Raw Score Averages for Cognitive Levels 62

7-7 Chemistry 30: Results for Individual Multiple-Choice Questions 63

7-8 Chemistry 30: Distribution of Marks for Written-Response Questions 64

7-9 Chemistry 30: Average Marks for Written-Response Questions 64

SECTION 8

8-1 Physics 30: Percentage of Students Achieving Standards 67

8-2 Physics 30: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores 68

8-3 Physics 30: Written-Response and Multiple-Choice Raw Score Totals 69

8-4 Physics 30: Diploma Examination Blueprint 70

8-5 Physics 30: Raw Score Averages for Reporting Categories 71

8-6 Physics 30: Raw Score Averages for Cognitive Levels 72

8-7 Physics 30: Results for Individual Multiple-Choice Questions 73

SECTION 8 (continued)

8-8 Physics 30: Distribution of Marks for Written-Response Questions . . . 74

8-9 Physics 30: Average Marks for Written-Response Questions . . . 74

SECTION 9

9-1 Number of Students Writing the French Translations June 1989 . . . 77

9-2 Social Studies 30 (French Translation): Percentage of Students Achieving Standards . . . 79

9-3 Social Studies 30 (French Translation): Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores . . . 79

9-4 Mathematics 30 (French Translation): Percentage of Students Achieving Standards . . . 80

9-5 Mathematics 30 (French Translation): Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores . . . 80

9-6 Biology 30 (French Translation): Percentage of Students Achieving Standards . . . 81

9-7 Biology 30 (French Translation): Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores . . . 81

9-8 Chemistry 30 (French Translation): Percentage of Students Achieving Standards . . . 82

9-9 Chemistry 30 (French Translation): Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores . . . 82

9-10 Physics 30 (French Translation): Percentage of Students Achieving Standards . . . 83

9-11 Physics 30 (French Translation): Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores . . . 83

TABLE PAGE

SECTION 10

10-1 Number of Students Writing Diploma Examinations by Gender 85

10-2 Results by Gender: Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores 87

SECTION 11

11-1 English 30: Maturity Status of Students Writing 91

11-2 English 30: School-Awarded Marks for Population Subgroups 92

11-3 English 30: Diploma Examination Marks for Population Subgroups . . 92

11-4 English 33: Maturity Status of Students Writing 93

11-5 English 33: School-Awarded Marks for Population Subgroups 94

11-6 English 33: Diploma Examination Marks for Population Subgroups . . . 94

11-7 Social Studies 30: Maturity Status of Students Writing 95

11-8 Social Studies 30: School-Awarded Marks for Population Subgroups . . 96

11-9 Social Studies 30: Diploma Examination Marks for Population Subgroups 96

11-10 Mathematics 30: Maturity Status of Students Writing 97

11-11 Mathematics 30: School-Awarded Marks for Population Subgroups . . . 98

11-12 Mathematics 30: Diploma Examination Marks for Population Subgroups 98

11-13 Biology 30: Maturity Status of Students Writing 99

11-14 Biology 30: School-Awarded Marks for Population Subgroups 100

11-15 Biology 30: Diploma Examination Marks for Population Subgroups . . 100

11-16 Chemistry 30: Maturity Status of Students Writing 101

11-17 Chemistry 30: School-Awarded Marks for Population Subgroups . . . 102

TABLE PAGE

SECTION 11 (continued)

11-18 Chemistry 30: Diploma Examination Marks for Population Subgroups 102

11-19 Physics 30: Maturity Status of Students Writing 103

11-20 Physics 30: School-Awarded Marks for Population Subgroups 104

11-21 Physics 30: Diploma Examination Marks for Population Subgroups . . . 104

11-22 Population Subgroup Summary: Mature Status and School-Awarded Mark Average Differences 106

11-23 Population Subgroup Summary: Diploma Examination Mark Average Differences 106

SECTION 1:
SUMMARY OF DIPLOMA EXAMINATION RESULTS

Figures 1-1 and 1-2 indicate the percentage of students who achieved the provincial standards. The minimum acceptable standard, or pass, is 50% and the standard of excellence is 80% or better. For an explanation of standards, refer to Appendix B, page 112.

Figure 1-1

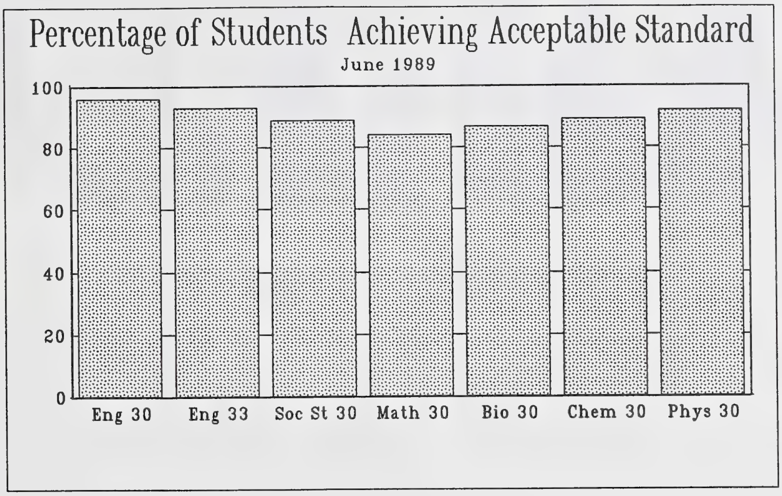
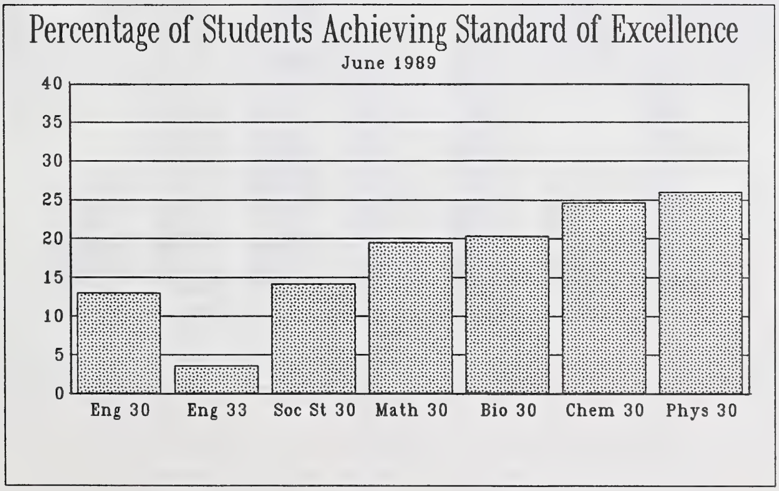


Figure 1-2



During June 1989, 65 321 diploma examinations were written (see Figure 1-3).

Figure 1-3

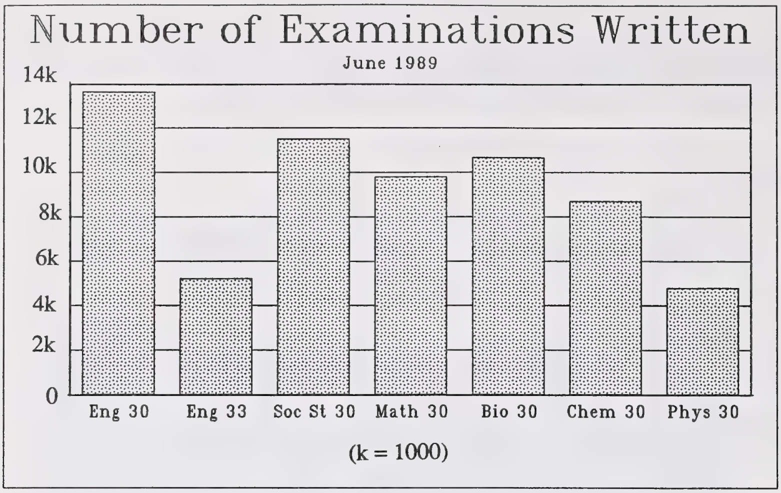
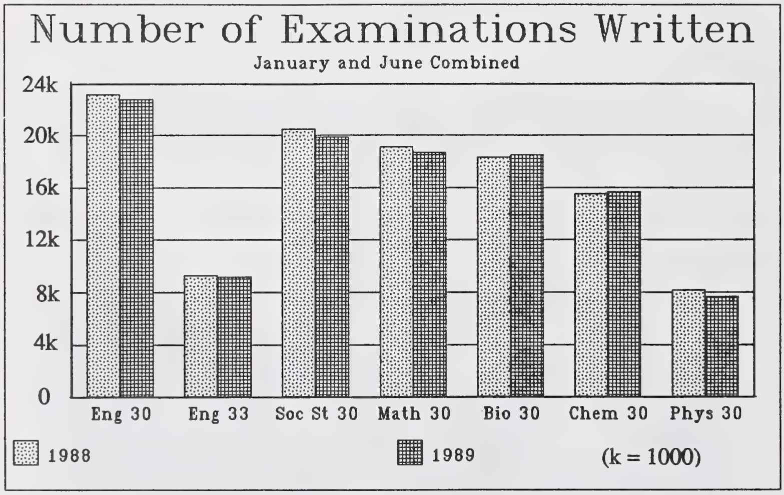


Figure 1-4 combines the 1989 January and June totals and compares them with the 1988 January and June totals.

Figure 1-4



Figures 1-5 to 1-11 indicate the distribution of letter grades in each diploma examination course. The distributions from subject to subject are not expected to be identical. Appendix A, Guidelines for Interpreting and Using the Results of the Diploma Examinations, page 107, should be consulted when considering these figures and the other figures and tables in this report.

Figure 1-5

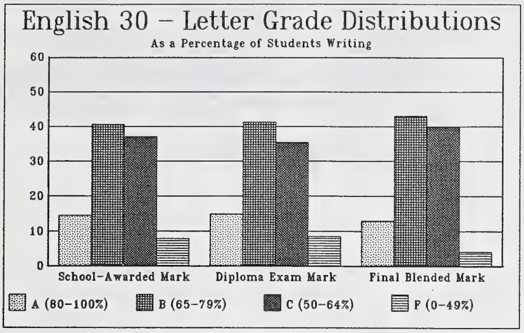


Figure 1-6

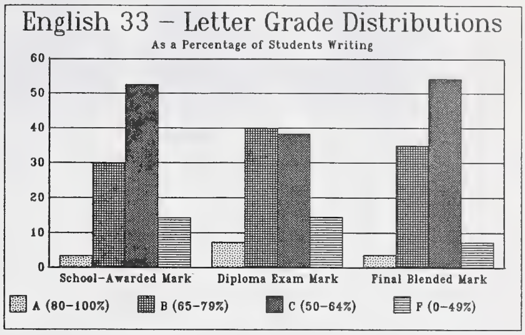


Figure 1-7

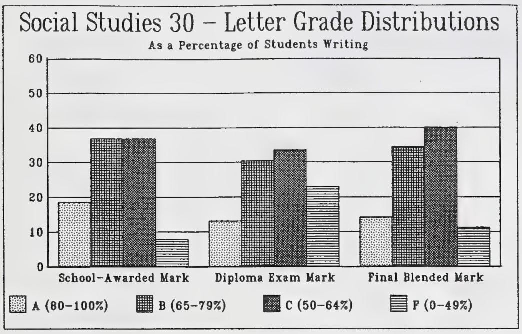


Figure 1-8

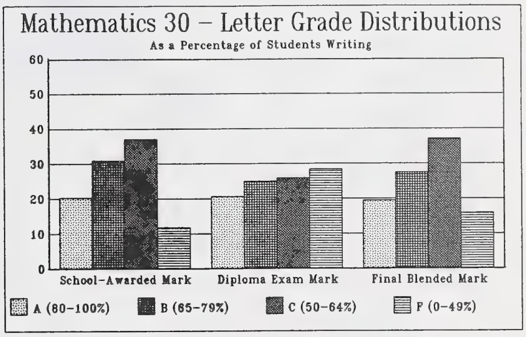


Figure 1-9

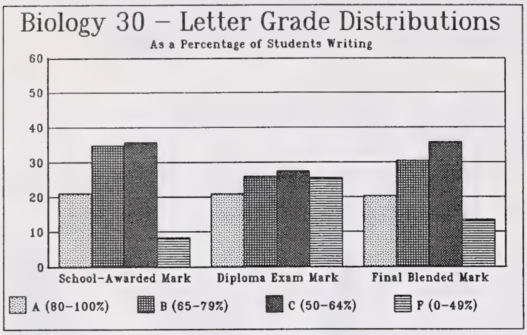


Figure 1-10

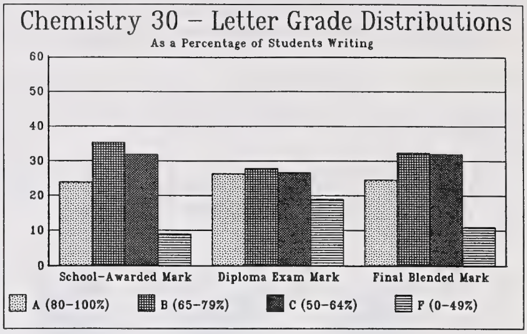


Figure 1-11

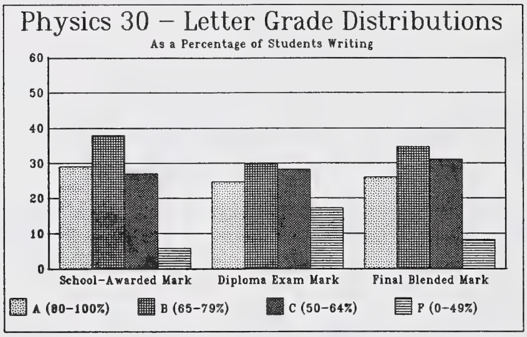


Table 1-1, page 5, compares the results for June 1989 with the results for June 1988.

Table 1-1
Averages of Student Marks in Diploma Examination Courses
June 1989 Examination Administration Compared with June 1988 Final Blended Mark*

Diploma Examination Course	June 1989 School-Awarded Mark	June 1989 Diploma Examination Mark	June 1989 Final Blended Mark	June 1988 Final Blended Mark
English 30	***N*** **=13 622**			***N*** **=13 943**
Average	65.6	66.4	66.5	64.1
Standard Deviation**	12.2	12.3	11.1	11.0
English 33	***N*** **= 5 226**			***N*** **= 5 229**
Average	59.6	62.9	61.8	61.9
Standard Deviation	10.9	11.9	9.8	9.6
Social Studies 30	***N*** **=11 505**			***N*** **=11 892**
Average	66.3	61.5	64.2	65.4
Standard Deviation	12.9	15.3	13.3	13.1
Mathematics 30	***N*** **= 9 780**			***N*** **=10 028**
Average	65.6	62.0	64.2	65.0
Standard Deviation	14.7	18.8	15.9	16.0
Biology 30	***N*** **=10 654**			***N*** **=10 419**
Average	66.8	62.7	65.1	65.7
Standard Deviation	13.2	17.9	14.9	15.0
Chemistry 30	***N*** **= 8 684**			***N*** **= 8 809**
Average	67.8	66.0	67.3	65.5
Standard Deviation	14.1	17.8	15.3	15.2
Physics 30	***N*** **= 4 791**			***N*** **= 5 011**
Average	70.4	66.0	68.6	69.3
Standard Deviation	13.5	16.6	14.2	14.7

* The figures may change slightly because of successful appeals of school-awarded marks, rescoring of diploma examinations, or special cases considerations.

** Standard deviation is an indication of the amount of variation in a distribution. Normally, about 34% of the population will be distributed one "standard deviation" below the mean. On the English 30 Diploma Examination, for example, 68% of students who wrote the examination scored between 54.1% and 78.7%.

Table 1-2 shows the combined student marks for January and June 1989.

Table 1-2
Distribution of Student Marks in Diploma Examination Courses Combined January and June 1989 Examination Administrations

Diploma Examination Course	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
English 30	***N* =22 758**		
A (80-100%)	13.9	12.6	11.6
B (65-79%)	40.9	38.9	41.9
C (50-64%)	37.4	39.2	42.3
F (0-49%)	7.8	9.3	4.2
English 33	***N* = 9 195**		
A (80-100%)	3.4	7.1	3.3
B (65-79%)	32.3	39.6	36.7
C (50-64%)	51.5	38.8	52.8
F (0-49%)	12.8	14.5	7.2
Social Studies 30	***N* =19 852**		
A (80-100%)	17.6	12.6	13.7
B (65-79%)	37.2	32.3	35.4
C (50-64%)	37.7	34.1	40.6
F (0-49%)	7.5	21.0	10.2
Mathematics 30	***N* =18 664**		
A (80-100%)	22.8	24.0	22.4
B (65-79%)	31.8	25.8	29.0
C (50-64%)	34.8	25.0	34.9
F (0-49%)	10.6	25.2	13.7
Biology 30	***N* =18 484**		
A (80-100%)	20.1	21.1	20.2
B (65-79%)	35.5	25.8	30.5
C (50-64%)	36.6	28.2	36.6
F (0-49%)	7.8	24.9	12.7
Chemistry 30	***N* =15 670**		
A (80-100%)	22.9	23.2	22.1
B (65-79%)	35.6	28.1	33.5
C (50-64%)	32.8	29.2	33.8
F (0-49%)	8.7	19.5	10.6
Physics 30	***N* = 7 679**		
A (80-100%)	27.6	24.7	25.3
B (65-79%)	38.9	29.8	34.8
C (50-64%)	27.5	27.4	31.2
F (0-49%)	6.0	18.1	8.7

SECTION 2:
ENGLISH 30 DIPLOMA EXAMINATION RESULTS

The English 30 Diploma Examination consists of two parts: Part A: Written Response and Part B: Reading (Multiple Choice), each worth 50% of the total examination mark.

The information contained in all tables in this section is based on results achieved by 13 622 students. All schools should have extra copies of the June 1989 Part A: Written Response and Part B: Reading (Multiple Choice) to use in conjunction with information provided in the tables that follow.

ENGLISH 30: PERCENTAGE OF STUDENTS ACHIEVING STANDARDS

The standards for diploma examinations are described in Appendix B, page 112. As shown in Table 2-1, the minimum acceptable standard, or pass, is 50% and the standard of excellence is 80% or better.

Table 2-1
English 30
Percentage of Students Achieving Standards*

Level	Final Blended Mark Representing Standard (%)	Percentage of Students Achieving Standard
Minimum Acceptable Standard	50	95.9
Standard of Excellence	80	13.0

*An explanation of standards is given in Appendix B.

Table 2-2 indicates the letter grade distribution students achieved for the course.

Table 2-2
English 30
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations* of Scores

Letter Grade	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100%)	14.5	14.9	13.0
B (65-79%)	40.6	41.2	43.0
C (50-64%)	37.0	35.4	39.9
F (0-49%)	7.9	8.5	4.1
Average (%)	65.6	66.4	66.5
Standard Deviation	12.2	12.3	11.1

*See footnote defining standard deviation below Table 1-1.

Table 2-3 gives raw score totals for the two parts of the examination.

Table 2-3
English 30
Written-Response* and Multiple-Choice Raw Score Totals

Section of the Examination	Total Marks Possible	Weighting (%)	Average Raw Score	Standard Deviation
Part A: Written Response	50	50	31.9	6.3
Part B: Multiple Choice	80	50	54.9	12.0

*Readers of this report should note that the internal weighting of reporting categories for Part A: Written Response changed in January 1988. Educators interpreting local results should take the changes in reporting category weighting into consideration if they are analysing results prior to January 1988.

Reviewers of results must also keep in mind that the assignments in 1989 are NOT parallel to those in 1988 (see Table 2-4). Refer to the *Grade 12 Diploma Examinations Program Bulletin: English 30 & English 33: 1988-89 School Year* (August 1988) for a discussion of examination modifications.

Results for Part A: Written Response are most clearly understood in the context of the assignments and the scoring descriptors. Complete scoring guides are available in the *Grade 12 Diploma Examinations Program Bulletin: English 30 & English 33: 1988-89 School Year* (August 1988).

Table 2-4 outlines the nature of the assignments, the reporting categories, and the proportion of the total mark assigned to each category for Part A: Written Response.

Table 2-4
English 30
Part A: Written Response
Diploma Examination Blueprint

Description of the Writing Assignment	Reporting Category	Proportion of Total Mark (%)
Minor Assignment		
The student is required to offer a personal response to the reading selection provided on the examination.	1. Thought and Detail	7.5
	2. Writing Skills	7.5
Major Assignment		
The major assignment maintains a thematic connection to the minor assignment. The student is required to demonstrate an appreciation of literary works studied through a discussion of theme and the literary techniques that support that theme. The student is also required to synthesize thoughts clearly and correctly in writing.	1. Total Impression	5.0
	2. Thought and Detail	12.5
	3. Organization	7.5
	4. Matters of Choice	5.0
	5. Matters of Convention	5.0
		50.0

The results outlined in tables 2-5 and 2-6 are best considered in terms of the percentage of students judged by markers to have presented work that was "Satisfactory" or above in any reporting category. A score of 3 (Satisfactory) represents the minimum acceptable standard in any reporting category.

Students do better on some dimensions of the task than on others. It is possible to draw conclusions about local program strengths and weaknesses by comparing local percentages of "Satisfactory" or above scores in each reporting category with the provincial averages.

Table 2-5 reveals that 88.6% of students scored "Satisfactory" or above for Thought and Detail and 90.8% scored "Satisfactory" or above for Writing Skills on the minor assignment.

Table 2-5
English 30
Part A: Written Response
Minor Assignment: Personal Response to Literature
Percentage Distribution of Scores*

Score	Reporting Category	
(Scale Points)	Thought and Detail	Writing Skills
5 (Excellent)	3.9	4.2
4 (Proficient)	30.8	33.3
3 (Satisfactory)	53.9	53.3
2 (Limited)	10.2	8.2
1 (Poor)	0.8	0.7
INS (Insufficient or No Response)	0.4	0.4

*Small discrepancies between parts and totals are due to rounding.

Table 2-6 reveals that 79.1% of students scored "Satisfactory" or above for Total Impression, 74.0% for Thought and Detail, 86.5% for Organization, 87.3% for Matters of Choice, and 87.9% for Matters of Convention on the major assignment.

Table 2-6
English 30
Part A: Written Response
Major Assignment: Literature Composition
Percentage Distribution of Scores

Score (Scale Points)	Reporting Category				
	Total Impression	Thought and Detail	Organization	Matters of Choice	Matters of Convention
5 (Excellent)	3.4	3.6	3.6	3.9	6.8
4 (Proficient)	20.2	21.9	23.5	26.3	33.6
3 (Satisfactory)	55.5	48.5	59.4	57.1	47.5
2 (Limited)	19.6	24.3	12.7	11.6	10.9
1 (Poor)	1.1	1.6	0.6	0.9	0.9
INS (Insufficient or No Response)	0.2	0.2	0.2	0.2	0.2

Part B has a value of 80 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the thinking skills demanded by the question and according to the curricular area being tested.

Table 2-7 shows the blueprint used to develop Part B: Reading (Multiple Choice).

Table 2-7
English 30
Part B: Reading (Multiple Choice)
Diploma Examination Blueprint

Reporting Category	Question Types by Cognitive Skills			Examination Emphasis (%)
	Literal Understanding	Inference and Application	Evaluation	
Meanings	*7,12,39,40*	*4,6,13,14, 15,17,19,25, 33,34,37,44, 48,60,64,65, 67,68,70,76, 78*	*5,8,9,10, 11,16,36, 45,72,73*	22
Critical Response	*1,3,38,69*	*2,18,20,23, 49,51,53,54, 57,58,62,66, 71,74,75,77, 79*	*24,35,43, 56,63,80*	17
Human Experience and Values		*21,27,28,29, 30,31,32,42*	*22,26,41, 46,47,50, 52,55,59, 61*	11
Examination Emphasis (%)	5	29	16	50

The averages referred to in Table 2-8 are quoted as raw scores rather than as percentages.

It is not appropriate to compare results achieved in one reporting category with those achieved in other reporting categories because the questions selected for each area of content are not selected to be equal in the level of difficulty. It is appropriate, however, to compare local results with provincial averages within each reporting category.

Table 2-8
English 30
Part B: Reading (Multiple Choice)
Raw Score Results

Reporting Category	Average	Standard Deviation
1. Meanings (35 questions)	24.2	6.0
2. Critical Response (27 questions)	18.8	4.2
3. Human Experience and Values (18 questions)	12.0	3.1

ENGLISH 30:
PERCENTAGE OF STUDENTS CHOOSING EACH ALTERNATIVE

Exam developers select questions for Part B: Reading (Multiple Choice) that fit the requirements of the blueprint with respect to question type and curriculum emphasis. They select questions that cover the full range of difficulty but strive to maintain a balance among difficult, easy, and middle-difficulty questions.

Each question is carefully reviewed for statistical and curricular validity when the preliminary results are available. Questions that have unforeseen technical problems that have adversely affected student performance are deleted before students' scores are calculated.

There is a detailed discussion of questions 27, 35, and 41 on page 15. This discussion makes sense only with reference to the Readings and Questions booklets that comprise Part B: Reading (Multiple Choice).

The results shown in Table 2-9, page 14, can best be used in conjunction with the parallel tables in the jurisdiction, school, and instructional group reports. Variations in patterns of students' responses to questions can help to indicate strengths and weaknesses in local educational programs.

Table 2-9 shows the percentage of students who chose each alternative (A, B, C, and D) for each multiple-choice question. The correct response (key) for each question is also identified.

Table 2-9
English 30
Results for Individual Multiple-Choice Questions*

		Distribution of Responses (%)						Distribution of Responses (%)			
Item	Key	A	B	C	D	Item	Key	A	B	C	D
1	D	8.9	35.8	10.2	44.9	41	A	50.3	27.6	9.5	12.5
2	B	17.7	73.4	4.1	4.7	42	C	20.8	11.3	63.9	3.9
3	C	2.3	11.2	74.4	12.0	43	D	4.2	15.5	8.5	71.6
4	C	8.1	13.9	63.3	14.5	44	A	68.6	13.8	11.1	6.4
5	D	24.3	3.7	4.6	67.3	45	B	3.1	72.4	11.9	12.5
6	C	4.5	9.9	79.6	6.0	46	D	16.2	10.7	3.8	69.3
7	A	71.3	18.2	7.6	3.0	47	D	5.2	3.3	3.1	88.4
8	B	3.3	60.1	17.2	19.3	48	C	14.1	5.4	70.6	9.8
9	B	10.0	70.4	7.8	11.7	49	D	2.7	13.2	11.0	73.0
10	A	82.7	6.5	0.7	10.1	50	D	8.4	11.3	16.3	63.8
11	B	15.2	66.2	6.9	11.7	51	A	65.5	14.7	2.7	17.0
12	B	5.4	85.0	6.9	2.6	52	D	3.5	11.4	27.3	57.6
13	D	9.3	2.7	5.8	82.2	53	B	13.4	69.4	12.6	4.5
14	C	10.1	7.3	76.5	6.1	54	A	80.2	10.6	3.9	5.1
15	A	91.2	0.6	4.6	3.6	55	A	75.2	2.8	15.5	6.3
16	A	55.3	7.0	29.7	7.9	56	B	7.7	71.4	9.7	11.1
17	C	6.3	5.4	76.1	12.2	57	B	7.9	79.5	9.8	2.7
18	B	1.6	84.8	4.9	8.7	58	D	4.1	6.7	17.6	71.5
19	C	27.2	2.9	67.6	2.3	59	D	8.7	13.9	12.4	64.9
20	A	75.9	5.8	10.0	8.3	60	C	11.4	19.8	60.4	8.1
21	B	17.7	68.4	7.5	6.3	61	A	62.1	5.0	19.1	13.7
22	D	2.1	2.7	17.2	78.0	62	C	8.1	13.2	59.9	18.7
23	C	15.6	4.7	76.7	3.0	63	A	77.2	5.7	6.0	10.9
24	D	1.9	29.0	8.2	60.7	64	C	13.4	22.8	57.0	6.6
25	D	5.6	5.7	6.0	82.7	65	A	61.9	13.9	15.4	8.6
26	C	23.4	4.6	52.6	19.3	66	A	51.3	15.0	19.0	14.4
27	C	11.6	37.1	42.2	8.9	67	D	16.3	17.1	5.2	61.0
28	B	2.8	77.9	14.5	4.8	68	D	5.5	11.7	10.9	71.5
29	D	10.3	7.6	24.4	57.6	69	A	56.5	21.8	11.0	10.2
30	C	6.9	8.3	76.0	8.7	70	B	10.7	78.1	7.3	3.5
31	D	4.1	25.0	5.0	65.8	71	C	30.9	10.4	51.4	6.9
32	B	13.5	81.5	3.2	1.7	72	D	7.3	8.9	14.9	68.5
33	A	63.5	10.5	12.9	13.0	73	B	8.6	56.7	15.5	18.7
34	B	17.2	59.5	14.0	9.2	74	B	8.4	81.1	4.5	5.6
35	B	8.7	62.0	20.9	8.3	75	B	4.3	86.3	1.9	7.2
36	D	1.8	10.7	7.6	79.8	76	A	56.5	5.7	24.4	13.0
37	B	10.7	56.1	28.2	4.9	77	C	12.6	29.1	49.8	8.2
38	A	85.0	8.3	4.4	2.2	78	C	20.5	7.2	69.1	2.9
39	A	62.4	7.1	20.2	10.1	79	D	3.3	9.9	5.5	80.7
40	D	13.1	15.0	10.1	61.7	80	B	5.2	65.1	22.6	6.5

*The sum of the percentages for each question may be less than 100% because the No Response category is not included. This category is not greater than 0.6% for any question.

ENGLISH 30:
EXAMINERS' REMARKS

Many teacher-markers expressed the opinion that the June 1989 Part A: Written Response was very successfully completed. Students seemed to be comfortable with the requirements of the Personal Response assignment. They interpreted the instruction "choose a quotation" in various ways and produced a wide variety of responses. Most were able to select something meaningful from the poem, but not all were successful in establishing the relationships among the quotation, the personal experience, and the theme of "limitations."

Regarding the major assignment, teacher-markers observed that most students were able to select literature that provided ready examples of "limitations," but rarely were students able to identify the author's development of an idea regarding limitations.

Standard-setters and teacher-markers concluded that student performance on Part B: Reading (Multiple Choice) of the June 1989 English 30 Diploma Examination was generally satisfactory. No questions were deleted after the final statistical analysis; however, questions 27, 35, and 41 elicited interesting patterns of student responses.

On question 27, 37.1% of students chose alternative B, an incorrect answer, and 42.2% chose alternative C, the correct answer. In order to select the correct response, a reader would have had to consider the quotation in the question as it appeared within the context of the story. Those students who chose the wrong answer might have connected the word "fears" in alternative B with the word "horrified" in the quotation in the question. However, the text of the story does not justify that connection. Perhaps students need more practice inferring meaning from the reading source. It is necessary that they refer to the text in order to answer the questions correctly. Interestingly, 78% of students correctly answered the following question, which explained why the wife was horrified by her husband's behavior.

Responses to question 35 suggest that some students still have difficulty recognizing theme; 20.9% of students incorrectly identified the conflict in the story as being Fakwes' alone. A close reading of the text, however, reveals that both characters struggle with the complex nature of moral responsibility, alternative B.

Question 41 was correctly answered, alternative A, by 50.3% of students. Alternatives B and C were also attractive: 28% of students chose B and 11.9% of high scoring students selected C. Again, with careful reading, alternative A clearly is the correct answer: Henry says in lines 34-35 that he wants to meditate alone for awhile: a disguise would enable him to do so.

While performance on the whole was satisfactory, it is apparent that some students experienced difficulty because they did not refer to the text when answering the questions. Problems understanding theme and difficulty inferring meaning were also evident.

SECTION 3:
ENGLISH 33 DIPLOMA EXAMINATION RESULTS

The English 33 Diploma Examination consists of two parts: Part A: Written Response and Part B: Reading (Multiple Choice), each worth 50% of the total examination mark.

The information contained in all tables in this section is based on results achieved by 5 226 students. All schools should have extra copies of the June 1989 Part A: Written Response and Part B: Reading (Multiple Choice) to use in conjunction with information provided in the tables that follow.

ENGLISH 33: PERCENTAGE OF STUDENTS ACHIEVING STANDARDS

The standards for diploma examinations are described in Appendix B, page 112. As shown in Table 3-1, the minimum acceptable standard, or pass, is 50% and the standard of excellence is 80% or better.

Table 3-1
English 33
Percentage of Students Achieving Standards*

Level	Final Blended Mark Representing Standard (%)	Percentage of Students Achieving Standard
Minimum Acceptable Standard	50	92.8
Standard of Excellence	80	3.6

*An explanation of standards is given in Appendix B.

Table 3-2 indicates the letter grade distribution students achieved for the course.

Table 3-2
English 33
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations* of Scores

Letter Grade	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100%)	3.3	7.2	3.6
B (65-79%)	29.9	40.0	35.0
C (50-64%)	52.5	38.3	54.2
F (0-49%)	14.3	14.5	7.2
Average (%)	59.6	62.9	61.8
Standard Deviation	10.9	11.9	9.8

*See footnote defining standard deviation below Table 1-1.

Table 3-3 gives raw score totals for the two parts of the examination.

Table 3-3
English 33
Written-Response* and Multiple-Choice Raw Score Totals

Section of the Examination	Total Marks Possible	Weighting (%)	Average Raw Score	Standard Deviation
Part A: Written Response	50	50	31.5	5.5
Part B: Multiple Choice	69	50	43.3	11.0

*Readers of this report should note that the internal weighting of reporting categories for Part A: Written Response changed in January 1988. Educators interpreting local results should take the changes in reporting category weighting into consideration if they are analysing results prior to January 1988.

Reviewers of results must also keep in mind that the assignments in 1989 are NOT parallel to those in 1988 (see Table 3-4). Refer to the *Grade 12 Diploma Examinations Program Bulletin: English 30 & English 33: 1988-89 School Year* (August 1988) for a discussion of examination modifications.

Results for Part A: Written Response are most clearly understood in the context of the assignments and the scoring descriptors. Complete scoring guides are available in the *Grade 12 Diploma Examinations Program Bulletin: English 30 & English 33: 1988-89 School Year* (August 1988).

Table 3-4 outlines the nature of the assignment, the reporting categories, and the proportion of the total mark assigned to each category for Part A: Written Response.

Table 3-4
English 33
Part A: Written Response
Diploma Examination Blueprint

Description of the Writing Assignment	Reporting Category	Proportion of Total Mark (%)
Personal Response to Literature The student is required to discuss an aspect of literature from a personal perspective.	1. Thought and Detail	10.0
	2. Organization	5.0
	3. Matters of Choice	5.0
	4. Matters of Convention	5.0
Functional Writing The assignment is functional in nature. The student is required to write within a given situation or context.	1. Thought and Detail	10.0
	2. Organization	2.5
	3. Writing Skills	2.5
Response to Visual Communication The writing assignment is connected to one or more photographs and/or cartoons. The student is required to write about main ideas and techniques of visual communication.	1. Thought and Detail	5.0
	2. Organization	2.5
	3. Writing Skills	2.5
		50.0

The results outlined in tables 3-5, 3-6, and 3-7 are best considered in terms of the percentage of students judged by markers to have presented work that was "Adequate" or above in any reporting category. A score of 3 (Adequate) represents the minimum acceptable standard in any reporting category.

Students do better on some dimensions of the task than on others. It is possible to draw conclusions about local program strengths and weaknesses by comparing local percentages of "Adequate" or above scores in each reporting category with the provincial averages.

Table 3-5 reveals that 83.6% of students scored "Adequate" or above for Thought and Detail, 87.7% for Organization, 87.8% for Matters of Choice, and 85.3% for Matters of Convention on the writing assignment in Section 1.

Table 3-5
English 33
Part A: Written Response
Section I: Personal Response to Literature
Percentage Distribution of Scores*

Score (Scale Points)	Reporting Category			
	Thought and Detail	Organization	Matters of Choice	Matters of Convention
5 (Proficient)	2.1	2.4	2.1	5.0
4 (Capable)	27.9	28.0	26.6	36.6
3 (Adequate)	53.6	57.3	59.1	43.7
2 (Limited)	15.4	11.5	11.2	13.1
1 (Poor)	0.6	0.5	0.7	1.4
INS (Insufficient or No Response)	0.3	0.3	0.3	0.3

*Small discrepancies between parts and totals are due to rounding.

Table 3-6 reveals that 86.3% of students scored "Adequate" or above for Thought and Detail, 91.0% for Organization, and 83.7% for Writing Skills on the writing assignment in Section II.

Table 3-6
English 33
Part A: Written Response
Section II: Functional Writing
Percentage Distribution of Scores

Score (Scale Points)	Reporting Category		
	Thought and Detail	Organization	Writing Skills
5 (Proficient)	2.0	2.8	3.1
4 (Capable)	25.6	30.0	29.0
3 (Adequate)	58.7	58.2	51.6
2 (Limited)	12.7	8.5	14.9
1 (Poor)	0.6	0.3	1.2
INS (Insufficient or No Response)	0.3	0.3	0.3

Table 3-7 reveals that 68.4% of the students scored "Adequate" or above for Thought and Detail, 80.3% for Organization, and 81.3% for Writing Skills on the writing assignment in Section III.

Table 3-7
English 33
Part A: Written Response
Section III: Response to Visual Communication
Percentage Distribution of Scores

Score (Scale Points)	Reporting Category		
	Thought and Detail	Organization	Writing Skills
5 (Proficient)	1.2	1.0	1.7
4 (Capable)	14.1	16.5	23.1
3 (Adequate)	53.1	62.8	56.5
2 (Limited)	28.6	17.5	15.6
1 (Poor)	1.6	0.7	1.7
INS (Insufficient or No Response)	1.4	1.4	1.4

Part B originally had a value of 70 marks, one mark for each multiple-choice question.

It is important to note that one multiple-choice question was deleted from Part B: Reading (Multiple Choice) after a review of question statistics. Consequently, for June 1989 the total mark value of Part B was 69 marks.

Each question is classified in two ways: according to the thinking skills demanded by the question and according to the curricular area being tested.

Table 3-8 shows the blueprint used to develop Part B: Reading (Multiple Choice).

Table 3-8
English 33
Part B: Reading (Multiple Choice)
Diploma Examination Blueprint

Reporting Category	Question Types by Cognitive Skills			Examination Emphasis (%)
	Literal Understanding	Inference and Application	Evaluation	
Meanings	*7,49,56,59*	*1,3,4,9,11,13*, 16,18,20,40,41, 42,45,52,54,55, 58,65*	*6,21,39, 43,63*	19
Relationships: Form and Content	*2*	*8,17,22,23, 24,57,62,69*	*47,50*	8
Human Experience and Values	*19*	*5,12,38,44, 51,53,60,64, 68,70*	*10,14,15, 46,48,61, 66,67*	14
Life Skills	*26,28,31*	*25,27,29,30, 34,35,37*	*32,33,36*	9
Examination Emphasis (%)	6	31	13	50

*Question 13 was deleted from the examination.

The averages referred to in Table 3-9 are quoted as raw scores rather than as percentages.

It is not appropriate to compare results achieved in one reporting category with those achieved in other reporting categories because the questions selected for each area of content are not selected to be equal in the level of difficulty. It is appropriate, however, to compare local results with provincial averages within each reporting category.

Table 3-9
English 33
Part B: Reading (Multiple Choice)
Raw Score Results

Reporting Category	Average	Standard Deviation
1. Meanings (26 questions)	16.8	4.8
2. Relationships: Form and Content (11 questions)	6.5	2.3
3. Human Experience and Values (19 questions)	11.5	3.6
4. Life Skills (13 questions)	8.5	2.4

ENGLISH 33:
PERCENTAGE OF STUDENTS CHOOSING EACH ALTERNATIVE

Exam developers select questions for Part B: Reading (Multiple Choice) that fit the requirements of the blueprint with respect to question type and curriculum emphasis. They select questions that cover the full range of difficulty but strive to maintain a balance among difficult, easy, and middle-difficulty questions.

Each question is carefully reviewed for statistical and curricular validity when the preliminary results are available. Questions that have unforeseen technical problems that have adversely affected student performance are deleted before students' scores are calculated.

There is a detailed discussion of questions 35 and 56 on page 26. This discussion makes sense only with reference to the Readings and Questions booklets that comprise Part B: Reading (Multiple Choice).

The results shown in Table 3-10, page 25, can best be used in conjunction with the parallel tables in the jurisdiction, school, and instructional group reports. Variations in patterns of students' responses to questions can help to indicate strengths and weaknesses in local educational programs.

Table 3-10 shows the percentage of students who chose each alternative (A, B, C, and D) for each multiple-choice question. The correct response (key) for each question is also identified.

Table 3-10
English 33
Results for Individual Multiple-Choice Questions*

		Distribution of Responses (%)			
Item	Key	A	B	C	D
1	A	73.1	13.2	5.0	8.5
2	D	21.4	9.8	15.5	53.2
3	D	6.3	5.2	26.3	62.0
4	A	88.2	4.5	5.1	2.2
5	D	7.6	7.1	31.1	54.1
6	B	12.4	61.4	17.9	8.3
7	B	7.5	76.0	12.4	4.1
8	C	16.9	12.1	63.3	7.6
9	D	13.1	18.5	1.8	66.6
10	D	9.8	10.1	14.8	65.3
11	A	63.2	3.5	16.9	16.4
12	C	19.6	22.2	51.9	6.2
13	QUESTION DELETED				
14	A	52.9	18.2	15.1	13.8
15	A	53.9	4.4	31.5	10.2
16	B	25.0	48.4	14.3	12.2
17	B	7.7	73.4	12.5	6.4
18	B	3.5	75.6	10.7	10.2
19	C	4.1	5.4	87.7	2.8
20	C	23.9	3.5	69.3	3.2
21	B	10.6	70.5	13.3	5.6
22	C	14.7	9.1	64.4	11.7
23	C	12.2	3.2	49.1	35.4
24	D	3.8	7.2	8.0	80.9
25	C	3.7	3.3	75.3	17.7
26	A	39.6	23.2	21.0	16.1
27	A	61.6	8.9	11.1	18.3
28	B	8.3	75.2	6.2	10.2
29	D	21.2	9.8	15.1	53.8
30	B	13.9	74.7	6.3	5.0
31	D	2.0	3.8	14.9	79.2
32	D	6.2	14.4	8.4	70.8
33	C	13.0	28.4	48.6	9.9
34	B	8.8	80.2	7.0	3.9
35	D	18.5	11.7	11.6	58.1
36	A	57.1	18.9	16.9	7.1
37	C	11.2	5.7	79.3	3.7
38	B	13.5	65.9	11.3	9.2
39	A	75.5	6.5	6.3	11.6
40	A	70.7	16.8	6.1	6.3
41	D	12.3	9.9	15.6	62.1
42	D	16.8	9.5	19.7	53.9
43	D	20.2	6.0	12.6	61.1
44	C	4.5	11.8	71.0	12.4
45	D	12.5	4.3	39.1	44.0
46	B	2.4	74.8	9.3	13.5
47	C	14.5	10.0	63.9	11.5
48	C	7.6	11.7	65.5	15.1
49	D	12.0	5.7	8.8	73.4
50	A	53.9	19.0	13.8	13.0
51	B	8.1	64.4	5.6	21.7
52	A	69.6	9.1	8.4	12.7
53	C	8.3	18.9	69.5	3.2
54	A	75.9	8.5	7.1	8.4
55	A	70.9	12.2	9.6	7.1
56	B	26.8	56.1	11.4	5.4
57	D	18.4	21.4	21.0	38.9
58	A	63.4	18.7	10.7	6.9
59	B	14.9	55.2	13.1	16.4
60	C	11.9	12.8	64.1	10.9
61	D	7.6	18.2	16.1	57.7
62	A	65.5	11.9	12.5	9.6
63	A	40.1	21.5	19.0	18.8
64	B	14.4	64.6	10.3	10.0
65	B	9.5	58.3	11.1	20.4
66	C	18.4	8.4	61.6	10.8
67	D	13.9	7.4	27.6	50.3
68	A	34.4	31.5	21.4	11.9
69	A	48.1	21.4	18.1	11.5
70	D	18.1	27.2	8.8	44.9

*The sum of the percentages for each question may be less than 100% because the No Response category is not included. This category is not greater than 0.9% for any question.

ENGLISH 33:
EXAMINERS' REMARKS

Many teacher-markers expressed the opinion that student performance on the June 1989 Part A: Written Response was satisfactory. In the Personal Response assignment, students were invited to refer to other literature they had studied. Some teacher-markers observed that when students attempted to refer to other literature, they were unable to make effective connections with the excerpt. Teachers may consider providing students with more instruction and practice in such tasks.

Standard-setters and teacher-markers concluded that student performance on Part B: Reading (Multiple Choice) of the June 1989 English 33 Diploma Examination was generally satisfactory.

A detailed review of question 13, following the final statistical analysis, revealed a flaw in the question, and it was deleted.

Statistical review of question 35 indicated that this question was within the middle range of difficulty. Those students who selected alternative D, the correct response "specific," did well on the test as a whole; however, a number of high scoring students chose alternative A, "balanced," which was an incorrect response. Teachers who served as standard-setters, item developers, and examination reviewers indicated that, in their view, English 33 students should be aware of the language of the discipline. They felt that it was a reasonable expectation for students to know about "balanced," "general," and "specific" writing as the question demanded. Students should be taught such concepts and should be aware that the examination will reflect teachers' expectations.

Statistical review of question 56 revealed that although the question fell within the middle range of difficulty, with 56.1% of students selecting alternative B, "unusual," as the correct response, a significant number of students (26.8%) were drawn to alternative A, "selfish." This choice indicates that these students did not know the meaning of the word "eccentricity" and were unable to deduce the meaning from the context.

While performance on the whole was satisfactory, there was evidence that some students did not refer to the readings when they answered the questions.

SECTION 4:
SOCIAL STUDIES 30 DIPLOMA EXAMINATION RESULTS

The Social Studies 30 Diploma Examination consists of two parts: a multiple-choice section worth 70% of the total examination mark and a written-response section worth 30% of the total examination mark.

The information contained in all tables in this section is based on results achieved by 11 505 students. All schools should have extra copies of the June 1989 Social Studies Diploma Examination to use in conjunction with information provided in the tables that follow.

SOCIAL STUDIES 30:
PERCENTAGE OF STUDENTS ACHIEVING STANDARDS

The standards for diploma examinations are described in Appendix B, page 112. As shown in Table 4-1, the minimum acceptable standard, or pass, is 50% and the standard of excellence is 80% or better.

Table 4-1
Social Studies 30
Percentage of Students Achieving Standards*

Level	Final Blended Mark Representing Standard (%)	Percentage of Students Achieving Standard
Minimum Acceptable Standard	50	88.7
Standard of Excellence	80	14.2

*An explanation of standards is given in Appendix B.

Table 4-2 indicates the letter grade distribution students achieved for the course.

Table 4-2
Social Studies 30
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations* of Scores

Letter Grade	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100%)	18.5	13.1	14.2
B (65-79%)	36.8	30.4	34.4
C (50-64%)	36.8	33.5	40.1
F (0-49%)	7.9	23.0	11.3
Average (%)	66.3	61.5	64.2
Standard Deviation	12.9	15.3	13.3

*See footnote defining standard deviation below Table 1-1.

Table 4-3 gives raw score totals for the two parts of the examination.

Table 4-3
Social Studies 30
Written-Response and Multiple-Choice Raw Score Totals

Section of the Examination	Total Marks Possible	Weighting (%)	Average Raw Score	Standard Deviation
Written Response	30	30	16.0	5.2
Multiple Choice	70	70	45.4	11.6

Part A has a value of 70 marks, one mark for each multiple-choice question. Each question is classified in two ways: according to the thinking (process) skills demanded by the question and according to the curricular area being tested.

Table 4-4 outlines the blueprint used to develop Part A: Multiple Choice.

Table 4-4
Social Studies 30
Part A: Multiple Choice
Diploma Examination Blueprint

Reporting Category	Questions by Process Category					Examination Emphasis (%)
	Recall and Comp.	Inquiry Skills A*	Inquiry Skills B	Inquiry Skills C	Valuing Skills	
Value Concepts competing values, value positions - Topic A - Topic B	*1,34, 36,61*				*14,29, 38,58*	8
Political and Economic Systems facts, concepts, generalizations	*2,3,4,5, 9,15,16, 17,23,27, 28,30,31, 32,33,35*	*12,20, 24*	*6,7,8,10, 11,18,21, 22,25*	*13,19, 26*		31
Co-operation and Conflict Among States facts, concepts, generalizations	*37,39,40, 43,44,45, 46,47,48, 54,57,59, 60,64,66, 67*	*41,49, 50*	*42,51,53, 55,56,62, 63,69,70*	*52,65, 68*		31
Examination Emphasis (%)	36	6	18	6	4	70

*Inquiry Skills A -- identify and focus on the issue, and formulate research questions. Inquiry Skills B -- gather, organize, analyse, evaluate, and synthesize data. Inquiry Skills C -- resolve the issue, apply the decision, and evaluate the decision, process, and action.

The averages referred to in Table 4-5 are quoted as raw scores rather than as percentages.

It is not appropriate to compare results achieved in one reporting category with those achieved in other reporting categories because the questions selected for each area of content are not selected to be equal in the level of difficulty. It is appropriate, however, to compare local results with provincial averages within each reporting category.

Table 4-5
Social Studies 30
Part A: Multiple Choice
Raw Score Results

Reporting Category	Average	Standard Deviation
1. Recall and Comprehension (32 questions)	19.8	6.2
2. Inquiry Skills A: Identify Issue (6 questions)	4.2	1.3
3. Inquiry Skills B: Gather and Use Data (18 questions)	12.2	3.0
4. Inquiry Skills C: Resolve and Decide (6 questions)	3.7	1.5
5. Valuing (8 questions)*	5.5	1.6
Political and Economic Systems (35 questions)	23.5	6.6
Co-operation and Conflict (35 questions)	21.9	5.7

*Of the eight Valuing (Reporting Category 5) questions, four are categorized as Recall and Comprehension (Reporting Category 1) and four are categorized as Valuing Skills.

SOCIAL STUDIES 30:
PERCENTAGE OF STUDENTS CHOOSING EACH ALTERNATIVE

Exam developers select questions for Part A that fit the requirements of the blueprint with respect to question type and curriculum emphasis. They select questions that cover the full range of difficulty but strive to maintain a balance among difficult, easy, and middle-difficulty questions.

Each question is carefully reviewed for statistical and curricular validity when the preliminary results are available. Questions that have unforseen technical problems that have adversely affected student performance are deleted before students' scores are calculated.

There is a detailed discussion of questions 43, 45, and 62 on page 35. This discussion makes sense only with reference to the Social Studies 30 examination booklet.

The results shown in Table 4-6, page 32, can best be used in conjunction with the parallel tables in the jurisdiction, school, and instructional group reports. Variations in patterns of students' responses to questions can help to indicate strengths and weaknesses in local educational programs.

Table 4-6 shows the percentage of students who chose each alternative (A, B, C, and D) for each multiple-choice question. The correct response (key) for each question is also identified.

Table 4-6
Social Studies 30
Results for Individual Multiple-Choice Questions*

		Distribution of Responses (%)			
Item	Key	A	B	C	D
1	B	6.9	87.4	2.8	2.7
2	C	5.9	15.5	74.2	4.2
3	B	22.7	53.2	17.4	6.4
4	C	3.3	16.8	77.2	2.6
5	C	9.9	12.6	45.9	31.4
6	C	0.9	6.2	88.7	4.1
7	B	3.6	78.2	15.6	2.5
8	D	2.1	1.7	4.6	91.6
9	A	67.3	4.0	15.9	12.8
10	B	12.8	65.8	15.8	5.6
11	A	60.6	18.5	8.1	12.7
12	C	21.3	6.8	59.9	11.9
13	B	5.8	53.3	21.3	19.7
14	A	45.1	28.7	17.2	8.9
15	D	3.6	18.1	1.4	76.9
16	D	21.7	5.3	4.0	69.0
17	A	54.7	33.8	6.6	4.9
18	B	4.7	48.3	22.3	24.7
19	A	65.2	5.0	16.8	12.9
20	D	12.8	6.1	14.8	66.3
21	A	71.5	11.4	9.5	7.5
22	C	5.6	12.8	75.7	5.8
23	B	8.7	58.5	11.1	21.6
24	D	10.1	2.0	1.6	86.2
25	A	71.3	5.5	18.6	4.5
26	C	10.4	2.8	78.9	7.7
27	D	3.7	23.2	15.0	58.0
28	C	16.5	18.5	54.5	10.4
29	A	81.3	8.6	7.4	2.6
30	B	12.5	69.1	15.5	2.9
31	A	57.6	7.3	18.4	16.5
32	B	31.3	58.4	5.2	5.1
33	A	54.4	24.7	13.0	7.7
34	D	6.9	4.1	13.0	75.9
35	D	2.5	5.3	22.5	69.7
36	A	73.3	9.2	8.6	8.9
37	A	66.7	8.0	12.6	12.5
38	B	6.8	52.8	13.0	27.2
39	A	49.2	12.6	22.4	15.6
40	C	6.3	7.4	64.3	22.0
41	A	57.6	11.8	18.7	11.7
42	B	10.5	80.1	7.2	2.1
43	D	20.6	8.6	11.5	59.2
44	D	1.2	4.5	23.1	71.0
45	D	11.1	5.4	42.3	41.1
46	B	16.1	47.7	21.9	14.1
47	D	13.5	26.0	9.2	51.3
48	C	7.9	6.5	74.7	10.8
49	D	6.0	3.4	7.4	83.1
50	C	15.3	7.4	62.4	14.8
51	C	11.6	14.8	56.5	17.1
52	B	6.6	56.3	16.1	20.9
53	A	89.2	4.4	2.2	4.1
54	B	9.6	78.4	4.4	7.4
55	A	55.0	11.5	15.3	18.3
56	D	7.3	3.7	7.1	81.8
57	C	6.2	6.0	71.8	15.9
58	B	12.4	49.3	10.1	28.0
59	D	15.6	35.9	9.3	39.2
60	B	13.1	68.3	9.9	8.6
61	D	2.6	3.9	4.1	89.3
62	D	75.5	8.4	7.5	8.6
63	B	7.8	73.6	6.3	12.1
64	D	11.9	11.5	7.3	69.1
65	C	22.4	18.7	39.8	19.0
66	B	9.8	50.6	24.3	15.1
67	D	5.9	8.0	9.4	76.5
68	B	5.2	79.4	12.5	2.9
69	A	62.3	11.5	22.2	3.8
70	A	58.6	17.8	16.4	7.1

*The sum of the percentages for each question may be less than 100% because the No Response category is not included. This category is not greater than 0.3% for any question.

Results for Part B: Written Response are most clearly understood in the context of the assignment and the scoring descriptors. Complete scoring guides are available in the *Grade 12 Diploma Examinations Program Bulletin: Social Studies 30: 1988-89 School Year* (September 1988).

Table 4-7 outlines the nature of the assignment, the reporting categories, and the proportion of the total mark assigned to each category for Part B: Written Response.

Table 4-7
Social Studies 30
Part B: Written Response
Diploma Examination Blueprint

Description of the Writing Assignment	Reporting Category	Proportion of Total Mark (%)
The student is required to write one complete and unified essay in which the student integrates steps of the inquiry process by defending a position on a given issue.	1. Defence of Position	10
	2. Discussion of Value Positions	5
	3. Presentation of Examples or Case Studies	10
	4. Quality of Language and Expression	5
		30

The results outlined in Table 4-8 are best considered in terms of the percentage of students judged by markers to have presented work that was "Satisfactory" or above in any reporting category. A score of 3 (Satisfactory) represents the minimum acceptable standard in any reporting category.

Students do better on some dimensions of the task than on others. It is possible to draw conclusions about local program strengths and weaknesses by comparing local percentages of "Satisfactory" or above scores in each reporting category with the provincial averages.

In responding to the writing assignment, 58.7% of students scored "Satisfactory" or above for Defence of Position, 49.7% for Discussion of Value Positions, 50.4% for Presentation of Examples or Case Studies, and 80.8% for Quality of Language and Expression.

Table 4-8
Social Studies 30
Part B: Written Response
Percentage Distribution of Scores*

Score (Scale Points)	Reporting Category			
	Defence of Position	Discussion of Value Positions	Presentation of Examples or Case Studies	Quality of Language and Expression
5 (Exceptional)	2.8	2.7	2.5	3.4
4 (Proficient)	15.8	13.5	13.3	20.6
3 (Satisfactory)	40.1	33.5	34.6	56.8
2 (Limited)	34.3	30.6	33.9	17.7
1 (Poor)	6.4	18.2	13.8	1.2
0 (Insufficient or No Response)	0.5	1.5	1.8	0.3

*Small discrepancies between parts and totals are due to rounding.

SOCIAL STUDIES 30:
EXAMINERS' REMARKS

Standard-setters and teacher-markers concluded that student performance on the June 1989 Social Studies 30 Diploma Examination was generally satisfactory. The average of 64.8% on the multiple-choice section meets expectations of the program and continues the pattern of proficiency achieved by Alberta students.

Detailed statistical review of the examination revealed that only on very few questions did students either read carelessly or lack essential information. These questions are discussed below.

Question 45 required students to recall an action taken by Adolf Hitler that was motivated by his desire to achieve *Lebensraum.* Slightly more students selected an incorrect response (Remilitarizing the Rhineland) rather than the keyed response (Invading the U.S.S.R.). These students may not have realized that the Rhineland was already a distinct part of Germany and not the object of achieving further "living space."

Question 62 required students to examine a graph and to draw an inference from a trend illustrated in the graph. This was a challenging question that demanded careful and deliberate thoughtfulness: students were required not only to apply their knowledge of the United Nations but also to analyse four alternatives in relation to a data source. Fewer than 10% of students selected the keyed response, alternative D, while over 75% selected the same incorrect response, alternative A. This latter group mistakenly inferred that the trend in recorded American votes in the General Assembly from 1978 to 1983 resulted from opposition to policies initiated by the secretary-general. It is possible that students did not read all the alternatives, that they read too quickly, or that they did not understand the role of the secretary-general of the UN. It appears that the majority of students did not give this question the focus and attention it warranted. Interestingly, those students who selected the correct response were amongst the highest achievers overall on the examination.

Although question 43 was of average difficulty, with 60% of students selecting the correct answer, alternative D, a few teachers expressed concern that the illustrated representation of rival alliances using uniformed figures was problematic. In fact, the uniforms were generic and there was no intended correspondence to the regalia of members of the Triple Alliance or the Triple Entente. It is a credit to students that their analysis of the source and their recall of relevant information focused on the "action" taken, as the question required, rather than on the design of the uniform worn.

Teacher-markers expressed the opinion that student achievement on the written component of the examination was also satisfactory. Alberta students appear to be writing more substantive papers when defending a position on an issue. A number of students who chose the Topic A assignment, however, did not address the issue required of them. The issue was political in focus and could be discussed only in political terms. Some students presented discussions that were economic in content and therefore unrelated to the issue. The consequence for such students was a low score. It is crucial that students address the issue presented in the assignment when applying their skills of argumentation and persuasion.

SECTION 5:
MATHEMATICS 30 DIPLOMA EXAMINATION RESULTS

The Mathematics 30 Diploma Examination consists of three parts: Part A has 45 machine-scored multiple-choice questions worth 69% of the total examination mark, Part B has seven machine-scored open-ended questions worth 11% of the total examination mark, and Part C has three written-response questions worth 20% of the total examination mark.

The information contained in all tables in this section is based on results achieved by 9 780 students.

MATHEMATICS 30:
PERCENTAGE OF STUDENTS ACHIEVING STANDARDS

The standards for diploma examinations are described in Appendix B, page 112. As shown in Table 5-1, the minimum acceptable standard, or pass, is 50% and the standard of excellence is 80% or better.

Table 5-1
Mathematics 30
Percentage of Students Achieving Standards*

Level	Final Blended Mark Representing Standard (%)	Percentage of Students Achieving Standard
Minimum Acceptable Standard	50	84.1
Standard of Excellence	80	19.5

*An explanation of standards is given in Appendix B.

The figures shown in Table 5-2 should be compared with statistics in similar tables in the jurisdiction, school, and instructional group reports as an aid in interpreting strengths and weaknesses in local educational programs. It should be noted that approximately 68% of students earned examination marks between 43.2% and 80.8%; that is, one standard deviation below and above the average of 62.0%.

Table 5-2
Mathematics 30
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations* of Scores

Letter Grade	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100%)	20.3	20.7	19.5
B (65-79%)	30.9	25.0	27.5
C (50-64%)	37.0	25.9	37.1
F (0-49%)	11.8	28.4	15.9
Average (%)	65.6	62.0	64.2
Standard Deviation	14.7	18.8	15.9

*See footnote defining standard deviation below Table 1-1.

Averages given in Table 5-3 are based on raw scores, which are the number of marks obtained on each section of the examination.

The total marks possible are identified for the written-response and the machine-scored sections.

Differences between the total Mathematics 30 Diploma Examination average reported in Table 5-2 and the examination section averages reported in Table 5-3 are due to rounding.

Table 5-3
Mathematics 30
Written-Response and Machine-Scored* Raw Score Totals

Section of the Examination	Total Marks Possible	Weighting (%)	Average Raw Score	Standard Deviation
Written Response	13	20	7.0	3.8
Machine Scored	52	80	33.2	9.3

*Machine-scored sections comprise Part A (machine-scored multiple-choice questions) and Part B (machine-scored open-ended questions).

MATHEMATICS 30: SUBSCALE AND INDIVIDUAL QUESTION RESULTS

Table 5-4, page 40, outlines the blueprint used to develop the Mathematics 30 Diploma Examination.

Examination emphases for each reporting category and cognitive level are included in the table. Classification by reporting category and cognitive level for each question is indicated.

Table 5-4
Mathematics 30
Diploma Examination Blueprint

Reporting Category	Questions* By Cognitive Level				Examination Emphasis (%)
	Knowledge	Comprehension	Application	Higher Mental Activities	
Trigonometry	*5*	*1,2,3,4,7, 11*	*6,9,10* *(OE1)* *[WR3]*	*8*	25
Quadratic Relations	*22*	*12,21,23* *(OE2)* *(OE3)*	*13,14,16, 17,18,19, 20*	*15*	21
Sequences, Series, Limits	*26*	*27,28,29*	*24* *(OE4)* *[WR1]*	*25*	18
Statistics	*31*	*30,32,34*	*33,35,36, 37*	*(OE5)*	14
Logarithms	*(OE6)*	*[WR2]*	*38*	*39*	11
Polynomial Functions	*43*	*40,45*	*42,44* *(OE7)*	*41*	11
Examination Emphasis (%)	9	36	46	9	100

*Numbers in square brackets [ ] are the written-response questions. Numbers in round brackets ( ) are the machine-scored open-ended questions. Numbers without brackets are the machine-scored multiple-choice questions.

The results shown in tables 5-5 and 5-6 can best be used in conjunction with the parallel tables in the jurisdiction, school, and instructional group reports. It is important to stress that the averages on the various reporting categories cannot be directly compared with one another. Variations in patterns of students' responses to questions can help to indicate strengths and weaknesses in local educational programs.

Table 5-5
Mathematics 30
Raw Score Averages for Reporting Categories

Reporting Category	Total Marks Possible			Raw Score Averages		
	Written Response	Machine Scored	Total	Written Response	Machine Scored	Total*
Trigonometry	4	12	16	1.5	8.6	10.0
Quadratic Relations	0	14	14	0.0	8.0	8.0
Sequences, Series, Limits	5	7	12	3.0	4.4	7.4
Statistics	0	9	9	0.0	6.3	6.3
Logarithms	4	3	7	2.5	1.8	4.4
Polynomial Functions	0	7	7	0.0	4.1	4.1

*Small discrepancies between parts and totals are due to rounding.

Table 5-6
Mathematics 30
Raw Score Averages for Cognitive Levels

Cognitive Level	Total Marks Possible			Raw Score Averages		
	Written Response	Machine Scored	Total	Written Response	Machine Scored	Total
Knowledge	0	6	6	0.0	4.0	4.0
Comprehension	4	19	23	2.5	12.0	14.6
Application	9	21	30	4.5	13.9	18.3
Higher Mental Activities	0	6	6	0.0	3.3	3.3

MATHEMATICS 30:
PERCENTAGE OF STUDENTS CHOOSING EACH ALTERNATIVE

The results shown in Table 5-7, page 43, can best be used in conjunction with the parallel tables in the jurisdiction, school, and instructional group reports. Variations in patterns of students' responses to questions can help to indicate strengths and weaknesses in local educational programs.

Machine-scored multiple-choice questions varied from those that students found to be quite difficult, such as question 41 with only 36.5% of students answering correctly, to those that were easy for students, such as question 1 with 87.8% of students answering correctly. An example of a question of average difficulty is question 44 with 65.3% of students answering correctly.

Table 5-7 shows the percentage of students who chose each alternative (A, B, C, and D) for each machine-scored multiple-choice question. The correct response (key) for each question is also identified.

Table 5-7
Mathematics 30
Results for Machine-Scored Multiple-Choice Questions*

		Distribution of Responses (%)						Distribution of Responses (%)			
Item	Key	A	B	C	D	Item	Key	A	B	C	D
1	C	5.0	5.1	87.8	2.0	24	B	8.0	71.5	11.1	9.0
2	C	6.4	15.0	69.0	9.3	25	A	54.0	7.9	27.5	10.1
3	B	11.2	77.3	6.9	4.2	26	D	8.8	5.6	10.2	75.3
4	D	15.1	6.5	12.6	65.7	27	D	28.2	6.4	8.8	56.4
5	A	81.3	7.5	4.4	6.7	28	D	9.9	7.3	11.0	71.6
6	B	6.0	78.5	10.5	4.6	29	A	45.1	15.8	15.4	23.6
7	A	68.1	13.2	13.6	5.0	30	C	4.8	9.2	80.6	5.2
8	D	6.0	6.2	22.6	64.8	31	C	5.1	17.9	74.8	2.2
9	C	15.6	27.9	48.6	7.3	32	A	51.1	20.0	10.4	18.1
10	B	5.0	78.0	10.4	6.4	33	B	7.6	57.8	22.5	11.8
11	C	23.1	10.3	59.9	6.5	34	B	1.6	85.7	3.1	9.5
12	A	76.3	5.3	15.7	2.7	35	D	18.1	3.6	7.2	71.0
13	D	12.7	14.9	10.7	61.6	36	D	2.5	9.1	11.3	77.1
14	C	10.1	25.6	55.1	8.7	37	C	5.4	19.0	69.8	5.6
15	B	18.3	52.2	25.3	3.8	38	A	70.5	14.7	8.3	6.4
16	A	68.5	10.9	17.2	3.2	39	D	7.2	12.0	14.9	65.4
17	B	26.3	48.8	20.5	4.2	40	B	4.0	76.6	9.3	10.0
18	A	59.3	21.0	11.4	8.2	41	A	36.5	19.8	31.5	11.6
19	D	4.0	9.1	6.3	80.5	42	C	22.6	17.6	47.1	12.1
20	D	13.1	13.1	6.0	67.7	43	B	27.9	58.2	5.7	8.0
21	C	12.1	20.7	52.1	15.0	44	B	11.6	65.3	14.5	8.3
22	A	64.6	11.2	19.5	4.7	45	C	12.8	7.7	62.6	16.6
23	C	14.3	10.2	60.2	15.1						

* The sum of the percentages for some questions is less than 100% because the No Response category is not included. This category does not exceed 0.7% for any question.

Table 5-8 reveals that on question 1, for example, 75.7% of students gave the correct answer of 035.9, 21.3% gave an incorrect answer, and 3.0% did not respond to the question at all.

Table 5-8
Mathematics 30
Results for Machine-Scored Open-Ended Questions

Question No.	Correct Answer	Distribution of Students (%)		
		Answered Correctly	Answered Incorrectly	No Response
1	035.9	75.7	21.3	3.0
2	000.7	17.9	66.8	15.3
3	004.6	36.0	45.7	18.3
4	170.6	67.1	27.8	5.1
5	083.0	55.3	35.6	9.1
6	006.3	44.9	47.4	7.7
7	007.5	61.4	29.0	9.7

Table 5-9 shows that on question 1, for example, 7.2% of students did not respond to the question, 8.7% were awarded no marks for their responses, 12.7% received one mark out of five, and 36.6% received full marks for their responses.

Table 5-9
Mathematics 30
Distribution of Marks for Written-Response Questions

Question No.	Percentage of Students Obtaining Each Mark						
	NR*	0	1	2	3	4	5
1	7.2	8.7	12.7	9.8	18.6	6.3	36.6
2	5.3	16.0	8.1	10.0	18.7	42.0	N/A
3	11.0	19.8	23.5	28.1	3.2	14.4	N/A

*No Response

When analysing Table 5-10, keep in mind that these averages cannot be directly compared since the questions were designed to be different in difficulty.

Table 5-10
Mathematics 30
Average Marks for Written-Response Questions

Question No.	Total Marks	Average	Difficulty Level*
1	5	3.0	0.59
2	4	2.5	0.63
3	4	1.5	0.37

*The difficulty level is the average divided by the total marks possible.

The first written-response question was done correctly by 36.6% of students. The remaining students seemed to have difficulty interpreting the summation notation. Many students lost two marks for a conceptual error in finding either the number of terms or the value of the first term. For instance, some students concluded that $n = 25$ or $n = 25 - 3 = 22$, rather than the correct $n = 25 - 3 + 1 = 23$; others concluded that $a = 4 - 2(1) = 2$, rather than the correct $a = 4 - 2(3) = -2$.

The results of the second written-response question were a surprise to the markers. They judged the question to be easy, but only 42.0% of students received full marks. It was obvious to the markers that many students have poor skills operating calculators. When reviewing individual school results on this question, teachers may find that they will want to spend more time teaching their students the proper use of a calculator.

Students found the third written-response question quite difficult, even though they would have earned two marks simply by writing each side of the identity in terms of $\cos\theta$. A number of students still "cross multiply" the two sides of the identity; no marks were assigned beyond that point in a student's solution. Two marks were deducted for failing to show explicitly the procedures used to simplify an expression. For example, the factored form of an expression had to be shown, as did the step showing the multiplication by the reciprocal of the denominator; neither should have been left to the imagination of the markers.

SECTION 6:
BIOLOGY 30 DIPLOMA EXAMINATIONS RESULTS

The Biology 30 Diploma Examination consists of two parts: Part A has 70 multiple-choice questions worth 70% of the total examination mark, and Part B has seven written-response questions worth 30% of the total examination mark.

The information contained in all tables in this section is based on results achieved by 10 654 students.

BIOLOGY 30: PERCENTAGE OF STUDENTS ACHIEVING STANDARDS

The standards for diploma examinations are described in Appendix B, page 112. As shown in Table 6-1, the minimum acceptable standard, or pass, is 50% and the standard of excellence is 80% or better.

Table 6-1
Biology 30
Percentage of Students Achieving Standards*

Level	Final Blended Mark Representing Standard (%)	Percentage of Students Achieving Standard
Minimum Acceptable Standard	50	86.6
Standard of Excellence	80	20.3

*An explanation of standards is given in Appendix B.

The figures shown in Table 6-2 should be compared with statistics in similar tables in the jurisdiction, school, and instructional group reports as an aid in interpreting strengths and weaknesses in local educational programs. It should be noted that approximately 68% of students earned examination marks between 44.8% and 80.6%; that is, one standard deviation below and above the average of 62.7%.

Table 6-2
Biology 30
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations* of Scores

Letter Grade	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100%)	21.0	20.9	20.3
B (65-79%)	34.9	26.0	30.5
C (50-64%)	35.8	27.5	35.8
F (0-49%)	8.3	25.6	13.4
Average (%)	66.8	62.7	65.1
Standard Deviation	13.2	17.9	14.9

*See footnote defining standard deviation below Table 1-1.

Averages given in Table 6-3 are based on raw scores, which are the number of marks obtained on each section of the examination.

The total marks possible are identified for the written-response and multiple-choice sections.

Differences between the total Biology 30 Diploma Examination average reported in Table 6-2 and the examination section averages reported in Table 6-3 are due to rounding.

Table 6-3
Biology 30
Written-Response and Multiple-Choice Raw Score Totals

Section of the Examination	Total Marks Possible	Weighting (%)	Average Raw Score	Standard Deviation
Written Response	30	30	15.5	6.5
Multiple Choice	70	70	47.1	12.3

BIOLOGY 30: SUBSCALE AND INDIVIDUAL QUESTION RESULTS

Table 6-4, page 50, outlines the blueprint used to develop the Biology 30 Diploma Examination.

Examination emphases for each reporting category and cognitive level are included in the table. Classification by reporting category and cognitive level for each question is indicated.

In addition, it should be noted that those questions identified with science process skills from the multiple-choice section are 4, 5, 13, 14, 15, 20, 22, 31, 39, 40, 50, 54, 62, and 68. Those from the written-response section are 2, 3, and 4. In total, science process skills received a mark value of 29 marks.

Table 6-4
Biology 30
Diploma Examination Blueprint

Reporting Category	Questions* By Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Cellular Processes	*3,8*	*1,2,6,7,9*	*4,5*	9
Homeostatic Mechanisms		*[2]*		5
Nutrition and Digestion	*10,17* *[1]*	*11,12,13,14, 16,18,19* *[1]***	*15*	15
Body Fluids	*21,24,25, 27,28,29*	*22,23,26*	*20,30* *[4]*	15
Breathing, Gas Exchange, and Transport	*33,35*	*32,34,36,37*	*31*	7
Energy Release	*41*	*38,39,40,42*		5
The Kidney	*43,45*	*44,46*	*[3]*	10
Regulation of the Internal Environment	*47,52,53,57 58*	*48,49,51,55, 56,59* *[5,6]*	*50,54*	20
Voluntary Movement and Body Support	*60,61*	*62,63*		4
Human Reproduction	*70*	*64,65,66,67, 69* *[7]*	*68* *[7]***	10
Examination Emphasis (%)	25	55	20	100

* Numbers in square brackets [ ] are the written-response questions. Numbers without brackets are the multiple - choice questions.

** Scores on written-response questions 1 and 7 are included in the Comprehension and Application Reporting Category.

The results shown in tables 6-5 and 6-6 can best be used in conjunction with the parallel tables in the jurisdiction, school, and instructional group reports. It is important to stress that the averages on the various reporting categories cannot be directly compared with one another. Variations in patterns of students' responses to questions can help to indicate strengths and weaknesses in local educational programs.

Table 6-5
Biology 30
Raw Score Averages for Reporting Categories

Reporting Category	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total*
Cellular Processes	0	9	9	0.0	5.9	5.9
Homeostatic Mechanisms	5	0	5	2.5	0.0	2.5
Nutrition and Digestion	5	10	15	3.2	6.9	10.1
Body Fluids	4	11	15	1.7	7.3	9.1
Breathing, Gas Exchange, and Transport	0	7	7	0.0	4.5	4.5
Energy Release	0	5	5	0.0	3.5	3.5
The Kidney	6	4	10	3.2	2.6	5.8
Regulation of the Internal Environment	7	13	20	3.7	9.0	12.7
Voluntary Movement and Body Support	0	4	4	0.0	2.9	2.9
Human Reproduction	3	7	10	1.2	4.5	5.7
Process Skills	15	14	29	7.4	8.4	15.8

*Small discrepancies between parts and totals are due to rounding.

Table 6-6
Biology 30
Raw Score Averages for Cognitive Levels

Cognitive Level	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Knowledge	0	23	23	0.0	16.2	16.2
Comprehension and Application	20	38	58	10.5	25.6	36.2
Higher Mental Activities	10	9	19	4.9	5.2	10.2

BIOLOGY 30:
PERCENTAGE OF STUDENTS CHOOSING EACH ALTERNATIVE

The results shown in Table 6-7, page 53, can best be used in conjunction with the parallel tables in the jurisdiction, school, and instructional group reports. Variations in patterns of students' responses to questions can help to indicate strengths and weaknesses in local educational programs.

Multiple-choice questions varied from those that students found to be difficult, such as question 5 with only 40.6% of students answering correctly, to those that were easy for students, such as question 11 with 89.4% of students answering correctly. An example of a question of average difficulty is question 65 with 65.1% of students answering correctly.

Table 6-7 shows the percentage of students who chose each alternative (A, B, C, and D) for each multiple-choice question. The correct response (key) for each question is also identified.

Table 6-7
Biology 30
Results for Individual Multiple-Choice Questions*

		Distribution of Responses (%)						Distribution of Responses (%)			
Item	Key	A	B	C	D	Item	Key	A	B	C	D
1	C	6.0	13.1	76.0	4.8	36	C	2.5	13.4	74.2	9.9
2	A	63.4	2.4	5.2	28.9	37	B	2.9	76.8	9.5	10.8
3	A	72.6	13.5	3.4	10.5	38	B	11.3	80.6	4.6	3.5
4	B	5.5	64.4	22.4	7.7	39	C	11.5	8.2	70.8	9.4
5	A	40.6	17.4	27.2	14.8	40	A	51.7	23.0	13.6	11.7
6	A	69.7	4.1	15.1	11.1	41	D	4.1	17.4	4.3	74.0
7	B	5.9	82.8	8.2	3.1	42	A	70.7	4.7	18.4	6.2
8	D	9.0	4.1	30.2	56.7	43	D	5.6	10.3	4.1	79.9
9	C	8.4	6.3	60.4	24.9	44	B	18.1	66.6	8.1	7.2
10	D	10.6	10.9	1.3	77.2	45	C	13.6	10.0	70.9	5.5
11	A	89.4	3.3	5.5	1.7	46	C	36.6	16.3	41.0	6.1
12	D	3.5	19.2	15.2	62.0	47	D	5.8	10.3	7.0	76.8
13	C	16.5	10.8	56.9	15.8	48	B	5.6	64.8	21.9	7.7
14	D	5.5	13.7	33.8	46.9	49	A	70.1	5.3	3.3	21.3
15	D	12.8	17.4	19.6	50.2	50	D	8.1	5.7	23.4	62.7
16	C	10.3	11.1	66.7	11.8	51	D	18.1	12.0	29.4	40.5
17	A	74.6	8.5	10.0	6.9	52	A	71.3	9.4	13.1	6.1
18	A	82.9	4.3	4.5	8.2	53	B	7.6	78.9	9.0	4.6
19	B	4.5	87.2	4.4	4.0	54	D	6.7	5.2	10.4	77.6
20	D	3.2	10.3	10.1	76.3	55	B	10.8	57.5	14.9	16.7
21	D	5.6	8.3	11.8	74.2	56	C	6.8	11.7	65.8	15.7
22	A	64.0	10.7	15.9	9.4	57	B	8.8	77.3	4.7	9.3
23	A	51.3	25.8	13.4	9.4	58	B	3.5	79.5	10.8	6.2
24	D	6.4	19.4	4.4	69.7	59	C	7.5	4.8	74.8	12.8
25	C	7.4	7.7	77.2	7.6	60	B	17.4	72.7	5.2	4.7
26	D	11.7	3.2	6.5	78.6	61	B	8.1	70.0	11.6	10.2
27	B	8.4	63.0	23.3	5.3	62	C	11.4	8.5	63.8	16.2
28	C	9.1	14.4	69.5	6.9	63	D	3.0	8.1	3.7	85.1
29	A	64.0	9.0	19.3	7.6	64	C	8.6	6.9	69.0	15.4
30	B	10.6	43.0	22.9	23.5	65	B	21.5	65.1	5.2	8.1
31	C	25.0	7.0	59.8	8.2	66	C	4.3	21.0	67.8	6.8
32	A	73.2	8.4	7.2	11.1	67	B	4.8	68.6	6.7	19.9
33	B	27.1	58.7	9.7	4.5	68	A	49.5	16.0	12.9	21.5
34	D	11.5	17.1	13.8	57.7	69	A	66.2	4.8	7.2	21.8
35	C	21.9	10.0	49.3	18.8	70	C	15.8	15.9	64.6	3.7

*The sum of the percentages for some questions is less than 100% because the No Response category is not included. This category does not exceed 0.1% for any question.

Table 6-8 shows that on question 1, for example, 0.9% of students did not respond to the question, and 4.0% were awarded no marks for their responses. The percentage of students who received one mark out of five was 9.2%, and 21.0% received full marks for their responses.

Table 6-8
Biology 30
Distribution of Marks for Written-Response Questions

Question No.	Percentage of Students Obtaining Each Mark							
	NR*	0	1	2	3	4	5	6
1	0.9	4.0	9.2	16.2	23.3	25.5	21.0	N/A
2	5.7	7.7	13.8	23.0	23.1	16.5	10.3	N/A
3	1.8	7.8	6.1	20.4	21.1	17.8	14.1	11.1
4	3.8	12.8	29.2	27.2	18.5	8.5	N/A	N/A
5	1.1	11.4	18.9	26.2	23.1	19.4	N/A	N/A
6	3.9	10.5	31.1	41.4	13.2	N/A	N/A	N/A
7	11.3	26.1	24.9	22.4	15.4	N/A	N/A	N/A

*No Response

When analysing Table 6-9, keep in mind that these averages cannot be directly compared since the questions were designed to be different in difficulty.

Table 6-9
Biology 30
Average Marks for Written-Response Questions

Question No.	Total Marks	Average	Difficulty Level*
1	5	3.2	0.64
2	5	2.5	0.49
3	6	3.2	0.53
4	4	1.7	0.43
5	4	2.2	0.54
6	3	1.5	0.51
7	3	1.2	0.39

*The difficulty level is the average divided by the total marks possible.

BIOLOGY 30:
EXAMINERS' REMARKS

Student performance on the Biology 30 Diploma Examination was generally satisfactory. The average on the multiple-choice section was 67.2% with 0.4% of students obtaining the maximum possible raw score of 70. Multiple-choice questions that evaluated basic knowledge of Human Nutrition (Unit III) and Regulation of the Internal Environment (Unit VIII) were particularly well answered. For example, 89.4% of students correctly identified the liver and its function in question 11. Complex questions, however, that required students to relate laboratory tests to organ function, such as questions 13 and 14, produced a high level of discrimination between high and low achievers.

The expanded written-response section yielded an average of 51.6%, with 0.2% of students obtaining the maximum possible raw score of 30 and 0.4% obtaining zero.

On the first written-response question, comparisons that identified either similarities or differences between mechanical and chemical digestion were accepted. Examples instead of definitions or descriptions were deemed acceptable if they conveyed to the marker a clear understanding of the digestive process. A significant number of students used the phrase "breakdown of foods" indiscriminately and did not demonstrate clearly that they knew that chemical digestion involves cleaving chemical bonds or that enzymes convert reactants into simple chemical products. The use of "food particle" and "food molecule" interchangeably revealed an important misconception. On part (c), most students identified the function of starch; however, fewer students were able to explain the role of cellulose in nutrition.

Answers to the second written-response question demonstrated that biology students have become more proficient at graphing since 1985, the last time this process skill was evaluated on a diploma examination. However, considering that 13.4% of students did not obtain marks for this question, further instruction is needed on how to organize and present data. Answers to part (b) of this question indicated that many students could not differentiate the specific roles of the substrates, enzymes, and pH buffers of the reaction; they were therefore unable to state how a change in protein structure would affect the experiment.

On both the third and fourth written-response questions, students had little trouble identifying significant data; however, too often the explanations were restatements of the data. For example, on question 3 many students identified Patient 1 as suffering from kidney disease because protein and red blood cells appeared in the patient's urine; however, these students did not explain why the presence of these substances in the urine indicated disease. Such an explanation requires a clear understanding of kidney function. Many students did not provide an explanation for each of the symptoms stated in the fourth question. Although required to do so, fewer than 10% of students gave separate explanations for the reduced levels of O_2 in venous and in arterial blood.

In answering the fifth written-response question, students experienced few problems with part (a). Part (b) proved to be more difficult. Not many students stated that the reflex arc stimulated a more rapid response in the muscle because the arc bypasses the brain.

In answering part (a) of the sixth written-response question, some students associated dilation of the bronchi with greater surface area for diffusion. This reflects some confusion concerning the functions of bronchi and alveoli. Other students indicated that dilation of bronchi would cause the breathing rate rather than the volume of gases supplied to the lungs to increase. In part (b), many students indicated that peristalsis decreased so that energy could be used in other areas of the body. This suggests that energy flows from one organ to another rather than being produced by cells through cellular respiration. Part (c) was well answered.

For the seventh written-response question, 37.4% of students received zero. These students did not convey a clear understanding of antigen/antibody reactions; they were confused about the selective nature of the placenta; and they did not clarify the difference between normal and abnormal transfer of blood components.

SECTION 7:
CHEMISTRY 30 DIPLOMA EXAMINATION RESULTS

The Chemistry 30 Diploma Examination consists of two parts: Part A has 56 multiple-choice questions worth 80% of the total examination mark, and Part B has three written-response questions worth 20% of the total examination mark.

The information contained in all tables in this section is based on results achieved by 8 684 students.

CHEMISTRY 30:
PERCENTAGE OF STUDENTS ACHIEVING STANDARDS

The standards for diploma examinations are described in Appendix B, page 112. As shown in Table 7-1, the minimum acceptable standard, or pass, is 50% and the standard of excellence is 80% or better.

Table 7-1
Chemistry 30
Percentage of Students Achieving Standards*

Level	Final Blended Mark Representing Standard (%)	Percentage of Students Achieving Standard
Minimum Acceptable Standard	50	89.0
Standard of Excellence	80	24.6

*An explanation of standards is given in Appendix B.

The figures shown in Table 7-2 should be compared with statistics in similar tables in the jurisdiction, school, and instructional group reports as an aid in interpreting strengths and weaknesses in local educational programs. It should be noted that approximately 68% of students earned examination marks between 48.2% and 83.8%; that is, one standard deviation below and above the average of 66.0%.

Table 7-2
Chemistry 30
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations* of Scores

Letter Grade	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100%)	23.9	26.4	24.6
B (65-79%)	35.3	27.9	32.4
C (50-64%)	31.9	26.7	32.0
F (0-49%)	8.9	19.0	11.0
Average (%)	67.8	66.0	67.3
Standard Deviation	14.1	17.8	15.3

*See footnote defining standard deviation below Table 1-1.

Averages given in Table 7-3 are based on raw scores, which are the number of marks obtained on each section of the examination.

The total marks possible are identified for the written-response and the multiple-choice sections.

Differences between the total Chemistry 30 Diploma Examination average reported in Table 7-2 and the examination section averages reported in Table 7-3 are due to rounding.

Table 7-3
Chemistry 30
Written-Response and Multiple-Choice Raw Score Totals

Section of the Examination	Total Marks Possible	Weighting (%)	Average Raw Score	Standard Deviation
Written Response	14	20	8.5	3.4
Multiple Choice	56	80	37.7	9.8

CHEMISTRY 30: SUBSCALE AND INDIVIDUAL QUESTION RESULTS

Table 7-4, page 60, outlines the blueprint used to develop the Chemistry 30 Diploma Examination.

Examination emphases for each reporting category and cognitive level are included in the table. Classification by reporting category and cognitive level for each question is indicated.

In addition, it should be noted that those questions identified with science process skills from the multiple-choice section are 7, 12, 14, 15, 18, 20, 22, 26, 27, 30, 31, 35, 36, 45, 47, 49, 51, and 53. Those from the written-response section are 1, 2, and 3. In total, science process skills received a mark value of 32 marks.

Table 7-4
Chemistry 30
Diploma Examination Blueprint

Reporting Category	Questions* By Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Chemical Energetics	*1,5,8,9,12* *[1]*	*2,3,4,10,11,* *14,15,16,17* *18* *[1]***	*6,7,13*	34
Acids and Bases	*19,23,28,32*	*20,21,22,24,* *25,26,29,31,* *33,34,36,37* *[2]*	*27,30,35*	33
Oxidation-Reduction	*38,40,42,43,* *48,51*	*39,41,44,46,* *49,50,52,54,* *55,56*	*45,47,53* *[3]*	33
Examination Emphasis (%)	29	53	18	100

*Numbers in square brackets [ ] are the written-response questions. Numbers without brackets are the multiple-choice questions.

**Scores on written-response question 1 are included in the Comprehension and Application reporting category.

The results shown in tables 7-5 and 7-6 can best be used in conjunction with the parallel tables in the jurisdiction, school, and instructional group reports. It is important to stress that the averages on the various reporting categories cannot be directly compared with one another. Variations in patterns of students' responses to questions can help to indicate strengths and weaknesses in local educational programs.

Table 7-5
Chemistry 30
Raw Score Averages for Reporting Categories

Reporting Category	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Chemical Energetics	6	18	24	3.5	12.0	15.5
Acids and Bases	4	19	23	3.0	13.3	16.3
Oxidation-Reduction	4	19	23	2.0	12.4	14.4
Process Skills	14	18	32	8.5	11.7	20.2

Table 7-6
Chemistry 30
Raw Score Averages for Cognitive Levels

Cognitive Level	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Knowledge	0	15	15	0.0	11.5	11.5
Comprehension and Application	10	32	42	6.4	21.2	27.6
Higher Mental Activities	4	9	13	2.0	5.0	7.0

CHEMISTRY 30:
PERCENTAGE OF STUDENTS CHOOSING EACH ALTERNATIVE

The results shown in Table 7-7, page 63, can best be used in conjunction with the parallel tables in the jurisdiction, school, and instructional group reports. Variations in patterns of students' responses to questions can help to indicate strengths and weaknesses in local educational programs.

Multiple-choice questions varied from those that students found to be difficult, such as question 44 with only 36.1% of students answering correctly, to those that were easy for students, such as question 11 with 89.9% of students answering correctly. An example of a question of average difficulty is question 29 with 65.1% of students answering correctly.

Table 7-7 shows the percentage of students who chose each alternative (A, B, C, and D) for each multiple-choice question. The correct response (key) for each question is also identified.

Table 7-7
Chemistry 30
Results for Individual Multiple-Choice Questions*

		Distribution of Responses (%)			
Item	Key	A	B	C	D
1	B	4.9	81.0	6.7	7.4
2	D	6.3	20.3	17.8	55.5
3	C	5.7	16.6	55.7	21.8
4	D	9.6	18.7	13.7	57.9
5	B	12.7	71.2	11.1	4.9
6	C	6.1	17.2	67.9	8.6
7	B	8.9	41.6	16.3	33.1
8	A	74.4	9.4	4.8	11.4
9	A	57.3	12.4	24.8	5.4
10	C	3.1	35.6	53.9	7.4
11	B	2.9	89.9	1.9	5.1
12	A	81.5	9.4	3.5	5.5
13	D	14.8	10.4	28.9	45.9
14	B	2.6	80.0	5.6	11.7
15	C	17.1	12.4	55.5	14.8
16	B	2.6	80.4	12.6	4.2
17	C	3.2	12.5	78.6	5.6
18	D	8.6	11.6	4.9	74.7
19	A	85.3	5.4	4.5	4.8
20	A	89.8	5.3	3.9	1.0
21	C	4.7	5.0	80.2	10.0
22	A	44.1	41.2	10.1	4.6
23	A	90.6	3.6	3.1	2.6
24	B	2.4	85.8	3.2	8.6
25	B	5.6	74.8	10.4	9.1
26	A	86.2	2.8	6.3	4.7
27	B	13.3	58.5	20.3	7.7
28	B	8.6	78.2	4.4	8.7
29	D	4.8	17.2	12.8	65.1
30	A	48.3	19.8	27.9	4.0
31	C	12.3	11.0	62.5	14.2
32	D	6.9	12.0	4.6	76.5
33	A	84.9	8.0	3.8	3.3
34	D	14.9	18.1	10.7	56.2
35	D	8.5	17.1	29.0	45.0
36	A	61.8	12.0	19.1	6.9
37	B	25.3	52.4	13.3	8.8
38	B	4.1	78.7	4.4	12.8
39	D	14.6	18.4	4.8	62.2
40	D	3.7	5.0	15.2	76.1
41	B	9.2	75.9	9.4	5.5
42	D	10.1	20.1	13.7	55.6
43	C	7.6	8.9	76.4	7.1
44	C	25.4	24.9	36.1	13.2
45	B	12.0	57.7	17.4	12.8
46	C	26.1	12.8	55.3	5.6
47	A	58.4	23.2	10.1	8.0
48	B	0.5	91.3	7.8	0.4
49	D	8.7	12.7	6.3	72.3
50	C	0.7	7.6	89.3	2.4
51	A	74.6	12.2	4.5	8.6
52	D	8.8	6.6	5.6	78.9
53	A	77.2	6.9	10.2	5.6
54	D	13.1	10.6	32.8	43.3
55	C	13.4	16.4	42.0	28.0
56	A	34.3	27.7	24.4	13.4

*The sum of the percentages for some questions is less than 100% because the No Response category is not included. This category does not exceed 0.4% for any question.

Table 7-8 shows that on question 1, for example, 1.7% of students did not respond to the question, and 8.7% were awarded no marks for their responses. The percentage of students who received one mark out of six was 7.8%, and 9.1% received full marks for their responses.

Table 7-8
Chemistry 30
Distribution of Marks for Written-Response Questions

Question No.	Percentage of Students Obtaining Each Mark							
	NR*	0	1	2	3	4	5	6
1	1.7	8.7	7.8	9.2	14.8	23.9	24.6	9.1
2	1.9	1.4	5.7	19.8	33.8	37.4	N/A	N/A
3	8.4	12.2	27.3	11.3	11.1	29.7	N/A	N/A

*No Response

When analysing Table 7-9, keep in mind that these averages cannot be directly compared since the questions were designed to be different in difficulty.

Table 7-9
Chemistry 30
Average Marks for Written-Response Questions

Question No.	Total Marks	Average	Difficulty Level*
1	6	3.4	0.57
2	4	3.0	0.74
3	4	2.0	0.51

*The difficulty level is the average divided by the total marks possible.

CHEMISTRY 30:
EXAMINERS' REMARKS

The overall level of achievement on the written-response section of the Chemistry 30 Diploma Examination was very good, with a mean score above 50%. There were few No Responses in the first two questions, which indicates that most students felt they knew something about each topic.

The mean score on the first written-response question was 57%. In part (a), many students demonstrated their inability to do basic chemical problem solving. Equations were left unbalanced and units were often not used consistently throughout the problem. Some students had difficulty using negative quantities. The mathematical calculations, however, were generally well done, and students demonstrated an ability to apply their knowledge to a new situation. Responses to part (b) clearly showed that students had experience with calorimetry labs. Answers to part (c) again revealed that students failed to read critically enough to find the key word, such as "how," and then build a response around the key word. Many written responses were poorly worded and organized or contained only a minimum amount of information that was not supported with much relevant chemistry.

The second written-response question was very well done, with a mean score of 74%. Many students received full marks, which indicates that neutralization and titration topics were well taught. However, some problem areas remain. Responses to the first part of the question demonstrated that some students do not understand the concept of dependent and independent variables, or that pH is plotted on the vertical axis. Some responses showed that students were confused about what constitutes a "point" and what constitutes a "range." Some students defined the pH range of the indicator as the equivalence point. A few also named the end point as the point where the graph terminates, and some students confused end point with equivalence point.

The third written-response question had a mean score of 51%. A large number of responses were well written and were awarded full marks. Many students extracted the relevant information and used scientific terms to communicate effectively. These students were able to apply their knowledge to a new and novel situation. There were, however, students who went to great lengths to prove the truth of the given statement rather than answering the question and others wrote only minimal responses without using any solid chemistry to support their claim. Some students never answered the question or, if they did, they confused concepts within their answer. Several students were not careful in their use of terminology and, for example, wrote "oxidation" when they meant to write "reduction." Inconsistencies such as these led to a lower mark being awarded.

SECTION 8:
PHYSICS 30 DIPLOMA EXAMINATION RESULTS

The Physics 30 Diploma Examination consists of two parts: Part A has 49 multiple-choice questions worth 70% of the total examination mark, and Part B has four written-response questions worth 30% of the total examination mark.

The information contained in all tables in this section is based on results achieved by 4 791 students.

PHYSICS 30: PERCENTAGE OF STUDENTS ACHIEVING STANDARDS

The standards for diploma examinations are described in Appendix B, page 112. As shown in Table 8-1, the minimum acceptable standard, or pass, is 50% and the standard of excellence is 80% or better.

Table 8-1
Physics 30
Percentage of Students Achieving Standards*

Level	Final Blended Mark Representing Standard (%)	Percentage of Students Achieving Standard
Minimum Acceptable Standard	50	91.8
Standard of Excellence	80	26.0

*An explanation of standards is given in Appendix B.

The figures shown in Table 8-2 should be compared with statistics in similar tables in the jurisdiction, school, and instructional group reports as an aid in interpreting strengths and weaknesses in local educational programs. It should be noted that approximately 68% of students earned examination marks between 49.4% and 82.6%; that is, one standard deviation below and above the average of 66.0%.

Table 8-2
Physics 30
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations* of Scores

Letter Grade	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100%)	29.1	24.7	26.0
B (65-79%)	38.0	29.8	34.7
C (50-64%)	27.1	28.3	31.1
F (0-49%)	5.8	17.2	8.2
Average (%)	70.4	66.0	68.6
Standard Deviation	13.5	16.6	14.2

*See footnote defining standard deviation below Table 1-1.

Averages given in Table 8-3 are based on raw scores, which are the number of marks obtained on each section of the examination.

The total marks possible are identified for the written-response and the multiple-choice sections.

Differences between the total Physics 30 Diploma Examination average reported in Table 8-2 and the examination section averages reported in Table 8-3 are due to rounding.

Table 8-3
Physics 30
Written-Response and Multiple-Choice Raw Score Totals

Section of the Examination	Total Marks Possible	Weighting (%)	Average Raw Score	Standard Deviation
Written Response	21	30	9.4	4.9
Multiple Choice	49	70	36.8	7.6

PHYSICS 30: SUBSCALE AND INDIVIDUAL QUESTION RESULTS

Table 8-4, page 70, outlines the blueprint used to develop the Physics 30 Diploma Examination.

Examination emphases for each reporting category and cognitive level are included in the table. Classification by reporting category and cognitive level for each question is indicated.

In addition, it should be noted that those questions identified with science process skills from the multiple-choice section are 6, 7, 8, 10, 19, 23, 24, 27, 30, 32, 34, 36, 37, and 48. Those from the written-response section are 1, 2, 3, and 4. In total, science process skills received a mark value of 35 marks.

Table 8-4
Physics 30
Diploma Examination Blueprint

Reporting Category	Questions* By Cognitive Level			Examination Emphasis (%)
	Knowledge	Comprehension and Application	Higher Mental Activities	
Light	*1,4,9*	*2,3,5,7,8,10*	*6* *[4]*	23
Electric and Magnetic Fields	*11,13,16,20*	*12,14,15,17, 18,19,21,22, 23,24*	*[1]*	27
EM Radiation	*25,26,31*	*28,29,30,32, 33,34*	*27*	14
Structure of Matter	*35,42,43*	*36,38,39,40, 41* *[2]*	*37*	20
Modern Physical Theories	*44,46,47,49*	*45* *[3]*	*48*	16
Examination Emphasis (%)	24	55	21	100

*Numbers in square brackets [ ] are the written-response questions. Numbers without brackets are the multiple-choice questions.

The results shown in tables 8-5 and 8-6 can best be used in conjunction with the parallel tables in the jurisdiction, school, and instructional group reports. It is important to stress that the averages on the various reporting categories cannot be directly compared with one another. Variations in patterns of students' responses to questions can help to indicate strengths and weaknesses in local educational programs.

Table 8-5
Physics 30
Raw Score Averages for Reporting Categories

Reporting Category	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Light	6	10	16	1.6	7.7	9.4
Electric and Magnetic Fields	5	14	19	2.7	10.7	13.4
EM Radiation	0	10	10	0.0	7.3	7.3
Structure of Matter	5	9	14	2.6	6.5	9.2
Modern Physical Theories	5	6	11	2.5	4.4	6.9
Process Skills	21	14	35	9.4	9.6	19.0

*Small discrepancies between parts and totals are due to rounding.

Table 8-6
Physics 30
Raw Score Averages for Cognitive Levels

Cognitive Level	Total Marks Possible			Raw Score Averages		
	Written Response	Multiple Choice	Total	Written Response	Multiple Choice	Total
Knowledge	0	17	17	0.0	12.6	12.6
Comprehension and Application	10	28	38	5.1	22.0	27.1
Higher Mental Activities	11	4	15	4.3	2.2	6.5

PHYSICS 30:
PERCENTAGE OF STUDENTS CHOOSING EACH ALTERNATIVE

The results shown in Table 8-7, page 73, can best be used in conjunction with the parallel tables in the jurisdiction, school, and instructional group reports. Variations in patterns of students' responses to questions can help to indicate strengths and weaknesses in local educational programs.

Multiple-choice questions varied from those that students found to be difficult, such as question 37 with only 35.9% of students answering correctly, to those that were easy for students, such as question 2 with 87.8% of students answering correctly. An example of a question of average difficulty is question 7 with 64.7% of students answering correctly.

Table 9-7 shows the percentage of students who chose each alternative (A, B, C, and D) for each multiple-choice question. The correct response (key) for each question is also identified.

Table 8-7
Physics 30
Results for Individual Multiple-Choice Questions*

		Distribution of Responses (%)			
Item	Key	A	B	C	D
1	A	77.4	6.9	7.3	8.4
2	B	4.9	87.8	1.9	5.4
3	C	4.3	12.2	79.4	4.0
4	B	12.7	57.1	23.2	7.0
5	D	5.5	0.9	2.4	91.2
6	B	2.8	77.5	4.7	14.9
7	B	6.8	64.7	23.0	5.5
8	D	7.0	5.8	14.0	72.7
9	A	79.1	4.3	10.2	6.4
10	C	2.8	5.4	85.9	5.6
11	B	2.0	81.9	2.3	13.8
12	A	77.0	9.9	10.8	2.3
13	A	71.3	13.3	6.0	9.4
14	D	6.1	1.8	4.7	87.4
15	B	10.3	58.8	17.5	13.3
16	A	70.0	7.6	14.8	7.7
17	C	6.9	5.6	77.4	9.8
18	C	1.2	1.5	90.9	6.3
19	B	4.3	82.4	8.5	4.6
20	D	2.2	7.5	7.5	82.8
21	A	77.7	7.6	8.4	6.1
22	D	1.3	1.7	4.1	92.8
23	B	7.0	71.3	14.5	7.1
24	C	15.0	13.9	48.1	23.0
25	C	6.4	10.3	72.9	10.5
26	A	60.6	5.9	10.1	23.2
27	C	18.5	27.0	48.3	6.1
28	D	14.7	2.4	1.8	81.1
29	C	11.4	7.4	63.4	17.7
30	B	3.0	78.0	5.0	14.1
31	D	2.9	4.4	9.8	83.0
32	D	2.0	1.9	10.8	85.2
33	B	2.1	90.8	5.5	1.6
34	B	20.8	68.7	5.3	5.0
35	A	72.1	10.3	8.1	9.4
36	C	6.4	11.6	76.7	5.3
37	B	48.0	35.9	6.4	9.7
38	C	7.6	9.1	78.1	5.2
39	C	4.7	6.1	82.0	7.0
40	B	8.8	73.4	7.7	9.5
41	A	78.4	8.1	11.4	1.9
42	B	1.2	77.3	2.7	18.8
43	D	6.7	9.2	7.2	76.8
44	D	7.3	8.0	4.7	80.0
45	C	3.5	3.5	89.5	3.4
46	A	74.9	5.1	10.2	9.8
47	C	10.6	21.1	65.2	3.1
48	B	10.1	61.7	14.0	13.3
49	C	11.9	7.6	70.2	10.2

*The sum of the percentages for some questions is less than 100% because the No Response category is not included. This category does not exceed 1.0% for any question.

Table 8-8 shows that on question 1, for example, 3.0% of students did not respond to the question, and 13.0% were awarded no marks for their responses. The percentage of students who received one mark out of five was 10.9%, and 18.7% received full marks for their responses.

Table 8-8
Physics 30
Distribution of Marks for Written-Response Questions

Question No.	Percentage of Students Obtaining Each Mark							
	NR*	0	1	2	3	4	5	6
1	3.0	13.0	10.9	19.1	18.3	16.9	18.7	N/A
2	1.7	5.4	25.5	20.6	9.2	19.5	18.0	N/A
3	1.4	9.1	22.5	12.9	23.9	23.3	7.0	N/A
4	3.3	47.7	7.0	10.0	9.8	7.6	10.6	4.0

*No Response

When analysing Table 8-9, keep in mind that these averages cannot be directly compared since the questions were designed to be different in difficulty.

Table 8-9
Physics 30
Average Marks for Written-Response Questions

Question No.	Total Marks	Average	Difficulty Level*
1	5	2.7	0.53
2	5	2.6	0.52
3	5	2.5	0.50
4	6	1.6	0.27

*The difficulty level is the average divided by the total marks possible.

PHYSICS 30:
EXAMINERS' REMARKS

Student performance on the Physics 30 Diploma Examination was generally satisfactory. The average of 74.8% on the multiple-choice section was very good. The previous pattern of excelling at the calculation questions was maintained. There was a distinct improvement in the answers to questions requiring an understanding of graphs and definitions. Students' responses remained weak on questions 27 and 37, which asked for an analysis of a hypothetical situation.

The performance on the written-response section was extremely variable. On each of the first three questions, about half the students recognized the key step and did very well, whereas the other half missed the key step and received a failing mark on the question. Question 4 was a new type: predictions were asked for, and many students did not realize that there was no call for a discussion of right and wrong answers.

The first written-response question was well answered by just over half the students. They recognized that the two forces had to be added using the Pythagorean Theorem and were able to illustrate their answers. These students' only difficulty was a failure to recognize that 53° for an angle was ambiguous and that some form of reference was needed in part (a). It was disappointing that nearly half the students added the two forces as real numbers, which showed a lack of understanding of vectors.

The second written-response question was designed to test students' ability to distinguish between the general method of energy conservation and the particular method, the Rydberg formula, to determine spectral wavelengths from an energy level scheme. Just over half were able to make this distinction.

The third written-response question yielded disappointing results. Too many students ignored the units and the powers of ten on the axes of the graph. As a result, they were unable to relate the slope to the speed of light.

The fourth written-response question was designed to test students' ability to make predictions from working hypotheses. Students interpreted the word "filter" either as a device that allowed only one color through or as a device that cut out only one color. Scoring guides were set up to allow for both interpretations. Both approaches were used successfully. However, many students discussed the additive theory of color with no reference to filters or to bananas; others chose one hypothesis as being true and defended their choice. These answers accounted for most of the zeros given for this question. Hypothesis 1 was a description of the yellow of a sodium street light, hypothesis 2 a description of a yellow image on a color TV screen, and hypothesis 3 a description of a high-gloss yellow paint. The eye sees each example as yellow. There was no evidence stated in the problem that allowed students to decide which hypothesis was correct. The purpose of the questions was for students to design an experiment using filters so as to extend the discriminating power of the human eye.

SECTION 9:
DIPLOMA EXAMINATION
FRENCH TRANSLATION RESULTS

French translations of the diploma examinations are available upon request in Social Studies 30, Mathematics 30, Biology 30, Chemistry 30, and Physics 30.

This section of the report provides information about the results achieved by the students who elected to write the June 1989 diploma examinations in French (see Table 9-1). Most of these students received instruction in the subject in French and most were French immersion or Francophone students.

Readers are encouraged to read Appendix A, page 107, when interpreting the results in this section of the report.

Table 9-1
Number of Students Writing the French Translations
June 1989

Subject	Number of Students
Social Studies 30	102
Mathematics 30	111
Biology 30	67
Chemistry 30	43
Physics 30	20

Figures 9-1 and 9-2 indicate the percentage of students who achieved the provincial standards. The minimum acceptable standard is 50% and the standard of excellence is 80% or better. For an explanation of standards, refer to Appendix B, page 112.

Figure 9-1

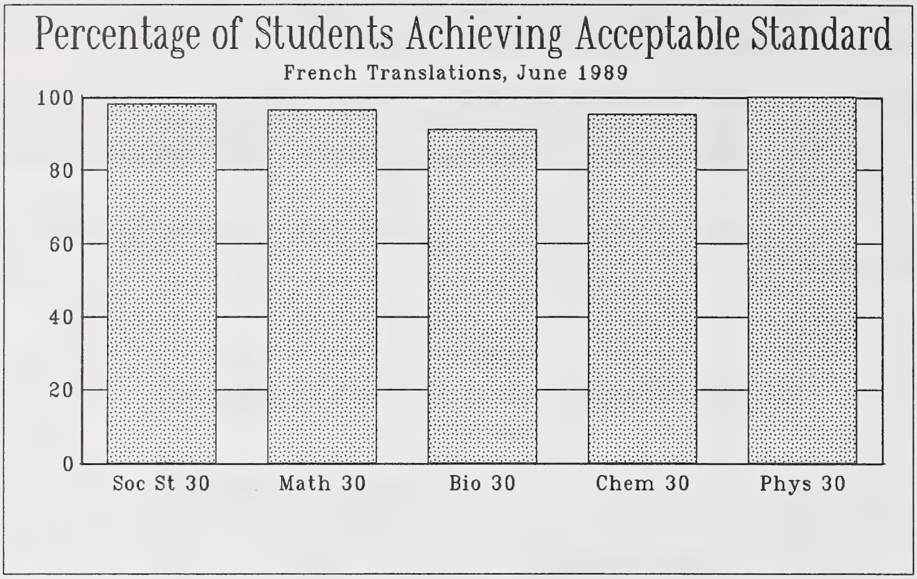
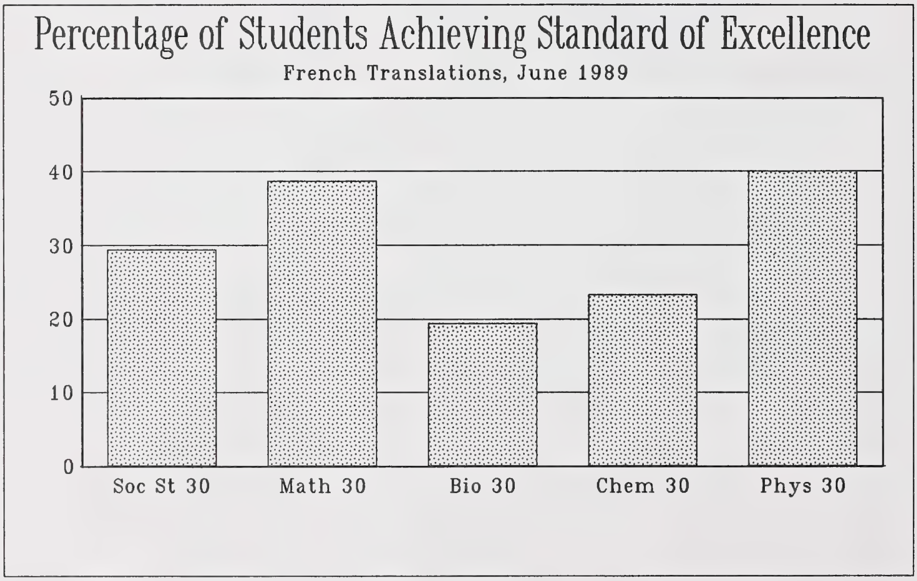


Figure 9-2



The following pages of Section 9 each contain a figure and two tables that show the distribution of letter grades, the percentage of students achieving standards, and the average and standard deviation of scores for each diploma subject taken in French.

Figure 9-3

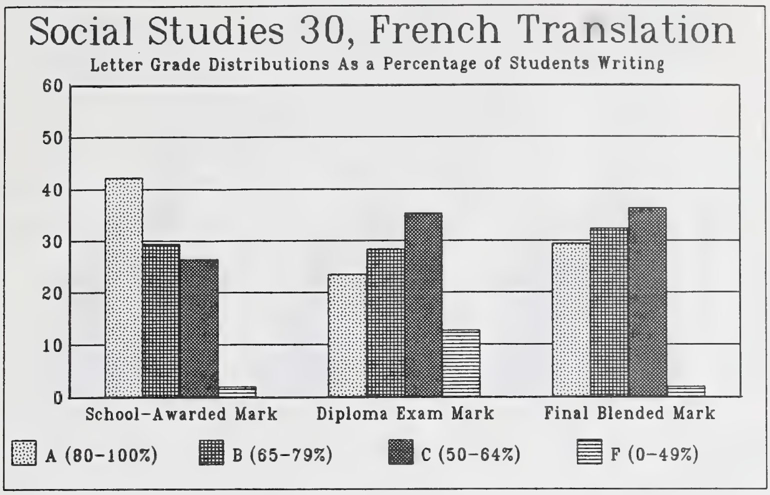


Table 9-2
Social Studies 30 (French Translation)
Percentage of Students Achieving Standards*

Level	Final Blended Mark Representing Standard (%)	Percentage of Students Achieving Standard
Minimum Acceptable Standard	50	98.0
Standard of Excellence	80	29.4

*An explanation of standards is given in Appendix B.

Table 9-3
Social Studies 30 (French Translation)
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations* of Scores

Letter Grade	School-Awarded Mark**	Diploma Examination Mark**	Final Blended Mark**
A (80-100%)	42.2	23.5	29.4
B (65-79%)	29.4	28.4	32.4
C (50-64%)	26.5	35.3	36.3
F (0-49%)	2.0	12.7	2.0
Average (%)	73.6	65.6	69.9
Standard Deviation	12.5	13.9	12.7

*See footnote defining standard deviation below Table 1-1.

**Small discrepanices between parts and totals are due to rounding.

Figure 9-4

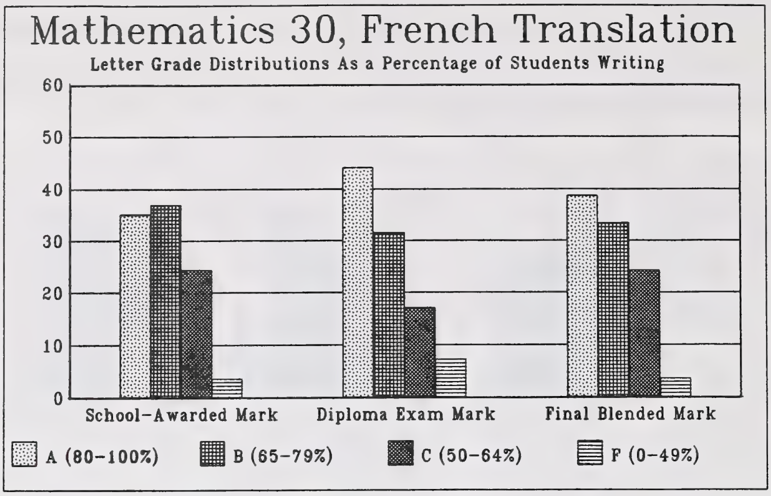


Table 9-4
Mathematics 30 (French Translation)
Percentage of Students Achieving Standards

Level	Final Blended Mark Representing Standard (%)	Percentage of Students Achieving Standard
Minimum Acceptable Standard	50	96.4
Standard of Excellence	80	38.7

Table 9-5
Mathematics 30 (French Translation)
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores

Letter Grade	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100%)	35.1	44.1	38.7
B (65-79%)	36.9	31.6	33.4
C (50-64%)	24.4	17.1	24.3
F (0-49%)	3.6	7.2	3.6
Average (%)	72.8	75.0	74.2
Standard Deviation	14.4	16.2	14.8

Figure 9-5

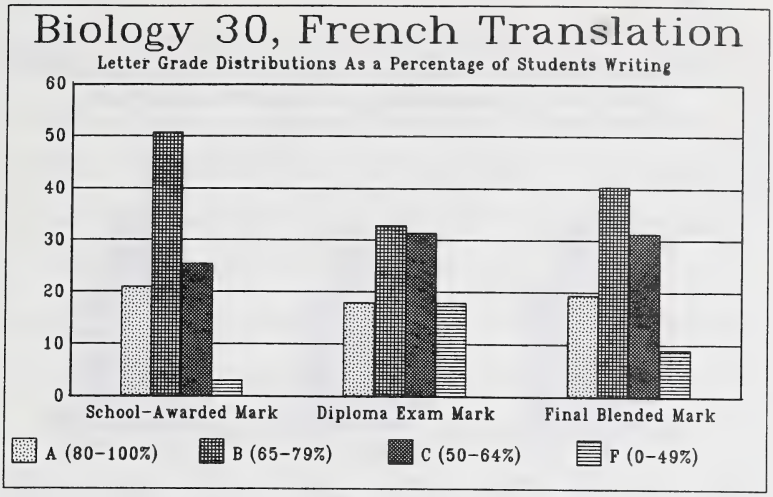


Table 9-6
Biology 30 (French Translation)
Percentage of Students Achieving Standards

Level	Final Blended Mark Representing Standard (%)	Percentage of Students Achieving Standard
Minimum Acceptable Standard	50	91.0
Standard of Excellence	80	19.4

Table 9-7
Biology 30 (French Translation)
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores

Letter Grade	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100%)	20.9	17.9	19.4
B (65-79%)	50.7	32.8	40.3
C (50-64%)	25.4	31.4	31.3
F (0-49%)	3.0	17.9	9.0
Average (%)	70.4	63.8	67.3
Standard Deviation	12.7	15.7	13.6

Figure 9-6

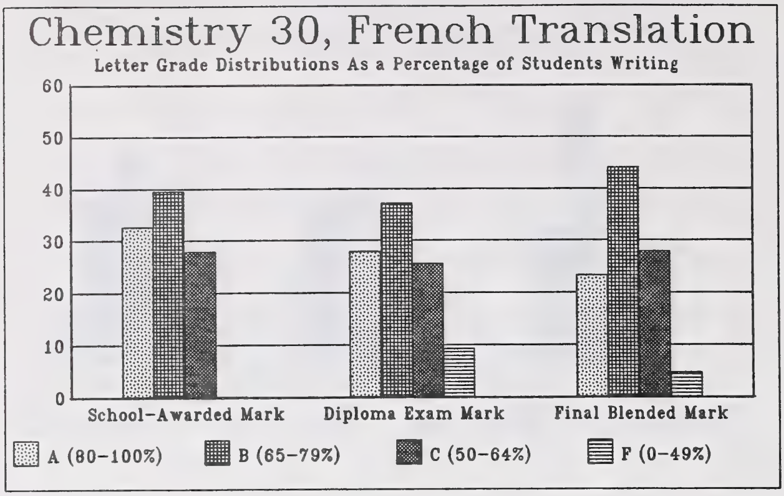


Table 9-8
Chemistry 30 (French Translation)
Percentage of Students Achieving Standards

Level	Final Blended Mark Representing Standard (%)	Percentage of Students Achieving Standard
Minimum Acceptable Standard	50	95.3
Standard of Excellence	80	23.3

Table 9-9
Chemistry 30 (French Translation)
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores

Letter Grade	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100%)	32.6	27.9	23.3
B (65-79%)	39.5	37.2	44.1
C (50-64%)	27.9	25.6	27.9
F (0-49%)	0.0	9.3	4.7
Average (%)	72.4	70.5	71.7
Standard Deviation	12.5	15.1	13.3

Figure 9-7

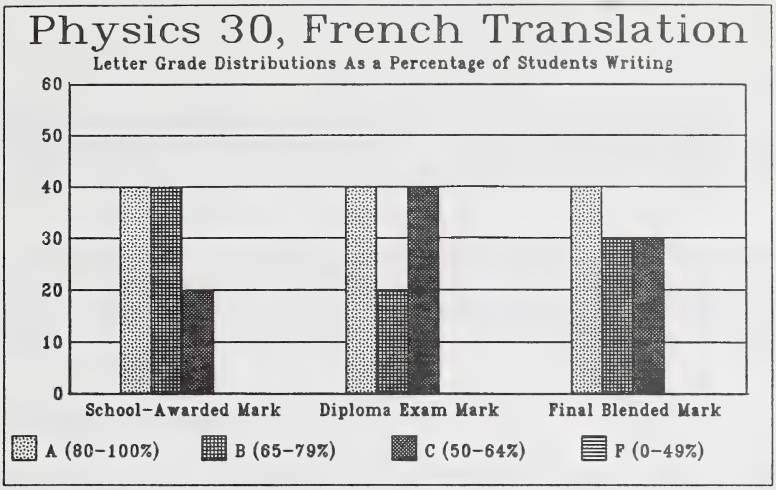


Table 9-10
Physics 30 (French Translation)
Percentage of Students Achieving Standards

Level	Final Blended Mark Representing Standard (%)	Percentage of Students Achieving Standard
Minimum Acceptable Standard	50	100.0
Standard of Excellence	80	40.0

Table 9-11
Physics 30 (French Translation)
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations of Scores

Letter Grade	School-Awarded Mark	Diploma Examination Mark	Final Blended Mark
A (80-100%)	40.0	40.0	40.0
B (65-79%)	40.0	20.0	30.0
C (50-64%)	20.0	40.0	30.0
F (0-49%)	0.0	0.0	0.0
Average (%)	75.5	70.8	73.4
Standard Deviation	10.6	12.9	11.2

SECTION 10:
STUDENT RESULTS BY GENDER

Introduction

This section of the report provides a breakdown by gender of the results achieved by students who wrote the June 1989 diploma examinations. This information is intended to help educators consider the patterns of results achieved by males and females in these selected Grade 12 courses in Alberta.

This information is a factual report regarding *what* happened in the June 1989 diploma examination administration. The interpretation of this information -- hypothesizing *why* results are as they are -- requires thoughtful consideration of the numerous variables that contribute to achievement. Refer to Appendix A, page 107, for more detailed information regarding the interpretation and use of results.

Organization of Tables and Figures

Table 10-1 shows the number and percentages of students by gender who wrote diploma examinations in June 1989. Figures 10-1 and 10-2, page 86, present the percentages of male and female students meeting acceptable and excellent standards of achievement, respectively, in each diploma examination subject. Table 10-2, page 87, provides the percentage distribution by gender of letter grades and shows averages and standard deviations.

Table 10-1
Number of Students Writing Diploma Examinations by Gender

Subject		No. of Students	Percentage
English 30	***N*=13 622**		
Male		6 339	46.5
Female		7 283	53.5
English 33	***N*= 5 226**		
Male		2 943	56.3
Female		2 283	43.7
Social Studies 30	***N*=11 505**		
Male		5 542	48.2
Female		5 963	51.8
Mathematics 30	***N*= 9 780**		
Male		4 803	49.1
Female		4 977	50.9
Biology 30	***N*= 10 654**		
Male		4 523	42.5
Female		6 131	57.5
Chemistry 30	***N*= 8 684**		
Male		4 327	49.8
Female		4 357	50.2
Physics 30	***N*= 4 791**		
Male		3 204	66.9
Female		1 587	33.1

Figure 10-1

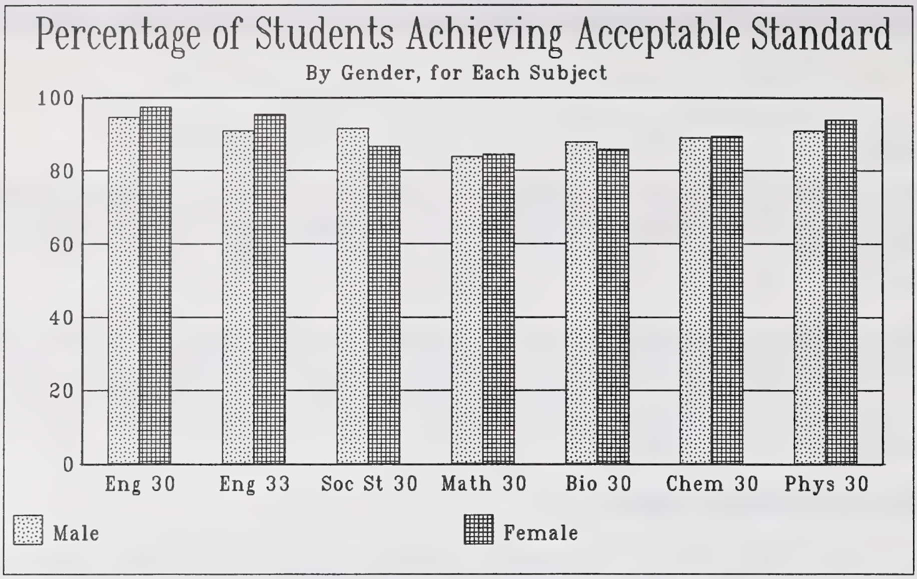


Figure 10-2

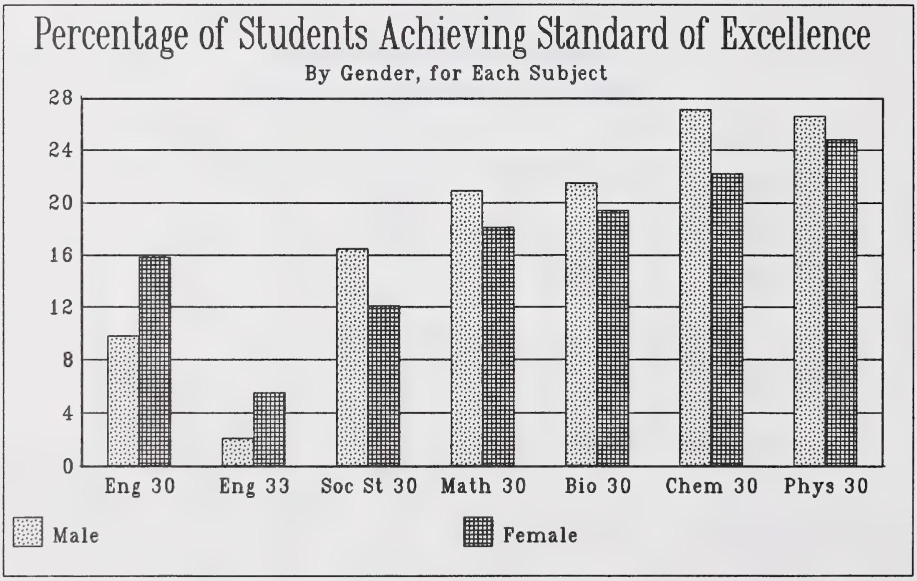


Table 10-2
Results by Gender
Provincial Percentage Distribution of A, B, C, and F Grades, Averages, and Standard Deviations* of Scores

Letter Grade	School-Awarded Mark			Diploma Examination Mark			Final Blended Mark		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
English 30									
A (80-100%)	14.5	11.1	17.4	14.9	11.9	17.5	13.0	9.8	15.8
B (65-79%)	40.6	35.9	44.6	41.2	40.4	42.1	43.0	39.9	45.7
C (50-64%)	37.0	42.1	32.7	35.4	37.8	33.3	39.9	44.8	35.7
F (0-49%)	7.9	10.9	5.3	8.5	10.0	7.1	4.1	5.5	2.9
Average (%)	65.6	63.4	67.5	66.4	65.1	67.5	66.5	64.7	68.0
Standard Deviation* (%)	12.2	12.5	11.6	12.3	12.2	12.2	11.1	11.1	10.9
English 33									
A (80-100%)	3.3	1.9	5.1	7.2	5.5	9.3	3.6	2.1	5.5
B (65-79%)	29.9	22.9	39.1	40.0	37.3	43.5	35.0	28.6	43.1
C (50-64%)	52.5	57.0	46.5	38.3	40.9	35.0	54.2	60.1	46.7
F (0-49%)	14.3	18.1	9.3	14.5	16.3	12.1	7.2	9.1	4.7
Average (%)	59.6	57.3	62.4	62.9	61.8	64.4	61.8	60.0	64.0
Standard Deviation (%)	10.9	10.5	10.6	11.9	11.7	12.0	9.8	9.4	9.8
Social Studies 30									
A (80-100%)	18.5	19.3	17.8	13.1	16.2	10.2	14.2	16.5	12.1
B (65-79%)	36.8	36.3	37.2	30.4	33.4	27.5	34.4	35.9	33.0
C (50-64%)	36.8	36.6	37.1	33.5	33.2	34.0	40.1	38.9	41.3
F (0-49%)	7.9	7.8	7.9	23.0	17.2	28.4	11.3	8.7	13.6
Average (%)	66.3	66.5	66.1	61.5	64.0	59.2	64.2	65.6	62.9
Standard Deviation (%)	12.9	12.9	12.8	15.3	14.8	15.4	13.3	13.1	13.3

*See footnote defining standard deviation below Table 1-1.

(Continued)

Table 10-2 (Continued)

Letter Grade	School-Awarded Mark Total	School-Awarded Mark Male	School-Awarded Mark Female	Diploma Examination Mark Total	Diploma Examination Mark Male	Diploma Examination Mark Female	Final Blended Mark Total	Final Blended Mark Male	Final Blended Mark Female
Mathematics 30									
A (80-100%)	20.3	21.2	19.4	20.7	22.4	19.0	19.5	20.9	18.1
B (65-79%)	30.9	30.0	31.8	25.0	24.3	25.7	27.5	27.1	28.0
C (50-64%)	37.0	35.8	38.2	25.9	25.5	26.3	37.1	35.8	38.3
F (0-49%)	11.8	13.0	10.6	28.4	27.8	28.9	15.9	16.2	15.6
Average (%)	65.6	65.6	65.5	62.0	62.6	61.3	64.2	64.5	63.8
Standard Deviation (%)	14.7	15.3	14.1	18.8	19.1	18.4	15.9	16.4	15.5
Biology 30									
A (80-100%)	21.0	20.6	21.3	20.9	23.0	19.3	20.3	21.5	19.4
B (65-79%)	34.9	34.7	35.1	26.0	27.4	25.0	30.5	31.0	30.1
C (50-64%)	35.8	35.7	35.8	27.5	27.3	27.7	35.8	35.2	36.2
F (0-49%)	8.3	9.0	7.8	25.6	22.3	28.0	13.4	12.3	14.3
Average (%)	66.8	66.6	67.0	62.7	64.3	61.5	65.1	65.8	64.6
Standard Deviation (%)	13.2	13.5	13.1	17.9	17.7	18.0	14.9	14.9	14.9
Chemistry 30									
A (80-100%)	23.9	25.3	22.5	26.4	30.0	22.8	24.6	27.1	22.2
B (65-79%)	35.3	34.6	35.8	27.9	27.6	28.2	32.4	31.9	32.8
C (50-64%)	31.9	30.3	33.6	26.7	24.7	28.7	32.0	29.8	34.2
F (0-49%)	8.9	9.8	8.1	19.0	17.7	20.3	11.0	11.2	10.8
Average (%)	67.8	68.0	67.6	66.0	67.4	64.7	67.3	68.1	66.5
Standard Deviation (%)	14.1	14.7	13.5	17.8	18.2	17.4	15.3	15.7	14.7
Physics 30									
A (80-100%)	29.1	28.5	30.3	24.7	26.2	21.7	26.0	26.6	24.8
B (65-79%)	38.0	35.6	42.8	29.8	29.5	30.6	34.7	33.1	37.7
C (50-64%)	27.1	28.9	23.4	28.3	26.8	31.2	31.1	31.1	31.3
F (0-49%)	5.8	7.0	3.5	17.2	17.5	16.5	8.2	9.2	6.2
Average (%)	70.4	69.7	71.7	66.0	66.3	65.5	68.6	68.4	68.9
Standard Deviation (%)	13.5	14.0	12.4	16.6	17.0	15.8	14.2	14.7	13.3

SECTION 11:
RESULTS FOR POPULATION SUBGROUPS

Introduction

The majority of students who wrote the June 1989 diploma examinations took the course in school and did not have mature status. The second largest group were students who took the course in school and had mature status.* For ease of reference, students who do not have mature status will hereinafter be termed "non-adult" and students with mature status will be termed "adult"; these terms are not used in any legal sense.

Sections 1 to 10 presented results for all non-adult and adult students who wrote a diploma examination and had an earlier or current school-awarded mark in that course. Results for non-adult and adult students with no school-awarded mark are reported in this section only.

Subgroup Definitions

The purpose of this section of the report is to compare results for students in subgroups defined by a combination of mature status and school-awarded mark status. The subgroups are as follows:

- Regular School: students who had a current school-awarded mark and a current diploma examination mark. This group comprises

    Non-adult in School: students who did not have mature status and had a current school-awarded mark and a current diploma examination mark, and

    Adult in School: students who had mature status and had a current school-awarded mark and a current diploma examination mark.

- Non-adult School Mark Brought Forward: students who did not have mature status and had no current school-awarded mark but did have an earlier school-awarded mark.

- Adult School Mark Brought Forward: students who had mature status and had no current school-awarded mark but did have an earlier school-awarded mark.

- Adult Challenging Examination: students who had mature status and had no school-awarded mark.

- Non-Adult No School Mark: students who did not have mature status and had no school-awarded mark.

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*A student with mature status is one who is 20 years of age or older *or* is 19 years of age and has been out of school for eight consecutive months since reaching the age of 18 *or* is the holder of an acceptable high school diploma or equivalent (see the *Guide to Education, Senior High Handbook 1989-90*, page 62).

Note:

1. Adults challenging a diploma examination receive course credit if they pass the examination; non-adults receive no course credit.

2. When an adult student earns a diploma examination mark that is higher than that student's school-awarded mark, the former becomes the final mark; otherwise, the normal blending is done to calculate the final mark.

Excluded Groups

Not included in any of the groups are students who were exempt from all or part of the examination or who wrote a substantially different form of the examination because of special considerations. Students in English 30 or English 33 who wrote the two parts of the examination in two different examination sittings (e.g., January and June) are also excluded. Very few students fall into these categories.

Organization of Tables

Three tables are provided, pages 91 to 104, for each diploma examination subject. The first shows the number and percentage of non-adult and adult students. The second summarizes the frequency, average school-awarded mark, and standard deviation of school-awarded marks for those subgroups that have school-awarded marks. The third table gives the frequency and the average and standard deviation of the total diploma examination mark, the written-response score, and the multiple-choice score for all subgroups.

Two additional tables, page 106, that summarize the data in the subject tables are included after the subject tables.

These tables are not provided as part of the jurisdiction, school, and instructional group reports, as almost all students in most schools and jurisdictions are in the Non-adult Regular School subgroup. However, superintendents of jurisdictions that have significant numbers of students in the other subgroups may request figures for their jurisdictions and schools from the Student Evaluation and Records Branch.

Achievement in English 30 by subgroups is compared in tables 11-1 to 11-3. About one in eight English 30 students writing the June 1989 diploma examination had mature status. Adults with current school-awarded marks received lower school-awarded marks and lower diploma examination marks than non-adults with current school-awarded marks.

Those adults who chose to challenge the diploma examination had a lower average diploma examination score (60.4%) than those adults with current school-awarded marks (63.5%). Within the non-adult group and the adult group, the difference between school-awarded mark averages and diploma examination mark averages was considerably greater for students with school-awarded marks brought forward than for those with current school-awarded marks.

These statistics indicate that recent instruction is of value in increasing diploma examination scores.

Table 11-1
English 30
Maturity Status of Students Writing

Type	Number	Percentage
Non-adult *	12 124	87.4
Adult *	1 744	12.6
Total	13 868	100.0

*Non-adult -- a student who does not have mature status
Adult -- a student who has mature status

Table 11-2
English 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average (%)	Standard Deviation (%)
Regular School	13 147	65.6	12.2
Non-adult in School	*11 687*	*65.7*	*12.1*
Adult in School	*1 460*	*64.3*	*12.7*
Non-adult Sch. Mk. Fwd.	385	66.2	12.1
Adult Sch. Mk. Fwd.	56	61.5	9.8

Table 11-3
English 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Total Score (%)		Written-Response Raw Score*		Multiple-Choice Raw Score**	
		Avg.	S.D.***	Avg.	S.D.	Avg.	S.D.
Regular School	13 147	66.6	12.2	32.0	6.3	55.1	11.9
Non-adult in School	*11 687*	*66.9*	*12.0*	*32.2*	*6.2*	*55.4*	*11.7*
Adult in School	*1 460*	*63.5*	*13.6*	*30.3*	*6.9*	*52.9*	*13.4*
Non-adult Sch. Mk. Fwd.	385	62.4	11.7	30.4	6.0	51.0	11.8
Adult Sch. Mk. Fwd.	56	51.7	12.2	25.3	6.4	41.9	12.5
Adult Challenging	228	60.4	15.4	28.0	8.2	51.7	14.1
Non-adult No Sch. Mk.	52	61.2	13.6	28.4	7.0	52.5	12.8

*Maximum written-response raw score is 50 marks
**Maximum multiple-choice raw score is 80 marks
***Standard Deviation

Achievement in English 33 by subgroups is compared in tables 11-4 to 11-6. About one in eight English 33 students who wrote the June 1989 diploma examination had mature status. Adults with current school-awarded marks tended to receive higher school-awarded marks and diploma examination marks than non-adults with current school-awarded marks.

Only 21 students (non-adult and adult) had school-awarded marks brought forward for blending with their June 1989 diploma examination marks. These students were lower than average on both the diploma examination and the school-awarded marks.

Adults challenging the diploma examination did quite well on average, exceeding the regular students' average on both written-response and multiple-choice sections of the examination.

Table 11-4
English 33
Maturity Status of Students Writing

Type	Number	Percentage
Non-adult *	4 764	87.8
Adult *	664	12.2
Total	5 428	100.0

*Non-adult -- a student who does not have mature status
Adult -- a student who has mature status

Table 11-5
English 33
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average (%)	Standard Deviation (%)
Regular School	5 071	59.7	10.8
Non-adult in School	*4 603*	*59.4*	*10.6*
Adult in School	*468*	*63.5*	*12.1*
Non-adult Sch. Mk. Fwd.	116	50.9	10.5
Adult Sch. Mk. Fwd.	21	57.4	9.0

Table 11-6
English 33
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Total Score (%)		Written-Response Raw Score*		Multiple-Choice Raw Score**	
		Avg.	S.D.***	Avg.	S.D.	Avg.	S.D.
Regular School	5 071	63.3	11.7	31.6	5.4	43.6	10.9
Non-adult in School	*4 603*	*63.1*	*11.2*	*31.5*	*5.2*	*43.4*	*10.6*
Adult in School	*468*	*65.2*	*15.9*	*32.4*	*7.3*	*45.1*	*13.7*
Non-adult Sch. Mk. Fwd.	116	50.5	10.6	26.2	5.2	33.1	9.7
Adult Sch. Mk. Fwd.	21	44.2	9.0	23.0	5.1	28.8	6.6
Adult Challenging	175	68.1	14.1	32.6	6.7	48.8	12.2
Non-adult No Sch. Mk.	45	61.5	11.4	30.4	4.9	42.8	10.8

*Maximum written-response raw score is 50 marks
**Maximum multiple-choice raw score is 69 marks
***Standard Deviation

Achievement in Social Studies 30 by subgroups is compared in tables 11-7 to 11-9. Fewer than one in fourteen Social Studies 30 students who wrote the June 1989 diploma examination had mature status. Those adults with current school-awarded marks tended to receive school-awarded marks very similar to non-adults with current school-awarded marks, but they earned lower diploma examination marks.

Students with school-awarded marks brought forward and who wrote the diploma examination without further instruction had lower school-awarded marks and much lower diploma examination marks than those with current school-awarded marks.

Adults challenging the diploma examination had considerably lower averages than students with current school-awarded marks.

Table 11-7
Social Studies 30
Maturity Status of Students Writing

Type	Number	Percentage
Non-adult *	10 827	93.1
Adult *	799	6.9
Total	11 626	100.0

*Non-adult -- a student who does not have mature status
Adult -- a student who has mature status

Table 11-8
Social Studies 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average (%)	Standard Deviation (%)
Regular School	11 250	66.5	12.8
Non-adult in School	*10 542*	*66.6*	*12.9*
Adult in School	*708*	*65.9*	*12.3*
Non-adult Sch. Mk. Fwd.	236	57.7	11.6
Adult Sch. Mk. Fwd.	19	61.9	15.5

Table 11-9
Social Studies 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Total Score (%)		Written-Response Raw Score*		Multiple-Choice Raw Score**	
		Avg.	S.D.***	Avg.	S.D.	Avg.	S.D.
Regular School	11 250	61.9	15.2	16.1	5.1	45.7	11.5
Non-adult in School	*10 542*	*62.0*	*15.1*	*16.2*	*5.1*	*45.7*	*11.5*
Adult in School	*708*	*59.5*	*15.6*	*14.8*	*5.3*	*44.6*	*11.9*
Non-adult Sch. Mk. Fwd.	236	46.1	14.6	12.3	4.6	33.7	11.4
Adult Sch. Mk. Fwd.	19	49.4	16.1	12.2	4.6	37.2	12.4
Adult Challenging	72	53.7	15.9	13.0	4.7	40.6	12.5
Non-adult No Sch. Mk.	49	59.7	15.6	15.1	5.3	44.6	12.1

*Maximum written-response raw score is 30 marks
**Maximum multiple-choice raw score is 70 marks
***Standard Deviation

Achievement in Mathematics 30 by subgroups is compared in tables 11-10 to 11-12. About one in seven Mathematics 30 students who wrote the June 1989 diploma examination had mature status.

The average of current school-awarded marks showed very little difference between non-adults and adults. However, the average of diploma examination marks for students with current school-awarded marks was higher for non-adults than for adults.

Non-adult students with current school-awarded marks achieved the highest average in diploma examination marks.

Students with no current instruction were not as successful as students in the regular school subgroup.

Table 11-10
Mathematics 30
Maturity Status of Students Writing

Type	Number	Percentage
Non-adult *	8 546	85.6
Adult *	1 433	14.4
Total	9 979	100.0

*Non-adult -- a student who does not have mature status
Adult -- a student who has mature status

Table 11-11
Mathematics 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average (%)	Standard Deviation (%)
Regular School	9 532	65.7	14.7
Non-adult in School	*8 293*	*65.6*	*14.6*
Adult in School	*1 239*	*66.4*	*15.3*
Non-adult Sch. Mk. Fwd.	194	62.1	14.8
Adult Sch. Mk. Fwd.	54	61.5	16.5

Table 11-12
Mathematics 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Total Score (%)		Written-Response Raw Score*		Machine Scored Raw Score**	
		Avg.	S.D.***	Avg.	S.D.	Avg.	S.D.
Regular School	9 532	62.2	18.7	7.1	3.7	33.3	9.3
Non-adult in School	*8 293*	*62.5*	*18.7*	*7.1*	*3.7*	*33.5*	*9.3*
Adult in School	*1 239*	*60.6*	*18.8*	*6.9*	*3.9*	*32.5*	*9.2*
Non-adult Sch. Mk. Fwd.	194	52.7	20.5	5.1	3.8	29.1	10.2
Adult Sch. Mk. Fwd.	54	47.3	18.0	5.0	3.6	25.7	9.1
Adult Challenging	140	47.8	21.5	4.4	4.0	26.6	10.5
Non-adult No Sch. Mk.	59	49.1	23.6	4.6	4.3	27.4	11.9

*Maximum written-response raw score is 13 marks
**Maximum machine-scored raw score is 52 marks
***Standard Deviation

Achievement in Biology 30 by subgroups is compared in tables 11-13 to 11-15. About one in eight Biology 30 students who wrote the June 1989 diploma examination had mature status.

Adult students with current school-awarded marks achieved the highest average in both school-awarded marks and diploma examination marks. The average of current school-awarded marks for adult students was higher than that for non-adult students. However, their diploma examination marks showed very little difference.

Students with no current instruction were not as successful as students in the regular school subgroup.

Table 11-13
Biology 30
Maturity Status of Students Writing

Type	Number	Percentage
Non-adult *	9 491	87.7
Adult *	1 334	12.3
Total	10 825	100.0

*Non-adult -- a student who does not have mature status
Adult -- a student who has mature status

Table 11-14
Biology 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average (%)	Standard Deviation (%)
Regular School	10 321	67.1	13.2
Non-adult in School	*9 173*	*66.8*	*13.2*
Adult in School	*1 148*	*69.4*	*13.0*
Non-adult Sch. Mk. Fwd.	287	58.1	10.1
Adult Sch. Mk. Fwd.	46	60.4	11.8

Table 11-15
Biology 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Total Score (%)		Written-Response Raw Score*		Multiple-Choice Raw Score**	
		Avg.	S.D.***	Avg.	S.D.	Avg.	S.D.
Regular School	10 321	63.2	17.8	15.7	6.4	47.5	12.2
Non-adult in School	*9 173*	*63.2*	*17.8*	*15.7*	*6.4*	*47.4*	*12.2*
Adult in School	*1 148*	*63.6*	*17.5*	*15.4*	*6.5*	*48.2*	*11.9*
Non-adult Sch. Mk. Fwd.	287	46.2	14.8	10.0	5.5	36.0	10.4
Adult Sch. Mk. Fwd.	46	43.8	13.8	9.0	5.9	34.6	9.3
Adult Challenging	140	57.8	20.0	13.5	7.2	44.2	13.9
Non-adult No Sch. Mk.	31	48.1	21.3	11.1	7.6	37.0	14.6

*Maximum written-response raw score is 30 marks
**Maximum multiple-choice raw score is 70 marks
***Standard Deviation

Achievement in Chemistry 30 by subgroups is compared in tables 11-16 to 11-18. About one in eight Chemistry 30 students who wrote the June 1989 diploma examination had mature status.

Non-adult students with current school-awarded marks achieved the highest average in both school-awarded marks and diploma examination marks.

The average of school-awarded marks for students with current school-awarded marks showed very little difference between non-adults and adults. However, non-adult students with current school-awarded marks achieved a higher average in diploma examination marks than adult students with current school-awarded marks.

Students with no current instruction were not as successful as students in the regular school subgroup.

Table 11-16
Chemistry 30
Maturity Status of Students Writing

Type	Number	Percentage
Non-adult *	7 689	87.3
Adult *	1 121	12.7
Total	8 810	100.0

*Non-adult -- a student who does not have mature status
Adult -- a student who has mature status

Table 11-17
Chemistry 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average (%)	Standard Deviation (%)
Regular School	8 482	67.8	14.1
Non-adult in School	*7 497*	*67.9*	*14.0*
Adult in School	*985*	*67.7*	*14.9*
Non-adult Sch. Mk. Fwd.	168	64.8	14.3
Adult Sch. Mk. Fwd.	34	62.0	13.2

Table 11-18
Chemistry 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Total Score (%)		Written-Response Raw Score*		Multiple-Choice Raw Score**	
		Avg.	S.D.***	Avg.	S.D.	Avg.	S.D.
Regular School	8 482	66.3	17.7	8.5	3.4	37.9	9.7
Non-adult in School	*7 497*	*66.6*	*17.7*	*8.6*	*3.4*	*37.9*	*9.7*
Adult in School	*985*	*64.3*	*17.7*	*7.6*	*3.6*	*37.4*	*9.6*
Non-adult Sch. Mk. Fwd.	168	55.8	19.6	6.6	3.8	32.5	10.8
Adult Sch. Mk. Fwd.	34	51.3	13.9	6.0	2.7	29.9	7.6
Adult Challenging	102	54.9	19.4	6.1	3.6	32.2	10.8
Non-adult No Sch. Mk.	24	53.7	20.7	6.2	3.8	31.4	11.8

*Maximum written-response raw score is 14 marks
**Maximum multiple-choice raw score is 56 marks
***Standard Deviation

Achievement in Physics 30 by subgroups is compared in tables 11-19 to 11-21. About one in eight Physics 30 students who wrote the June 1989 diploma examination had mature status.

Ten adult students with school-awarded marks brought forward achieved the highest average in school-awarded marks.

Non-adult students with current school-awarded marks achieved the highest average in diploma examination marks.

Non-adult students with current school-awarded marks achieved higher averages in both school-awarded marks and diploma examination marks than adult students with current school-awarded marks.

Students with no current instruction were not as successful as students in the regular school subgroup.

Table 11-19
Physics 30
Maturity Status of Students Writing

Type	Number	Percentage
Non-adult *	4 241	87.1
Adult *	628	12.9
Total	4 869	100.0

*Non-adult -- a student who does not have mature status
Adult -- a student who has mature status

Table 11-20
Physics 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average (%)	Standard Deviation (%)
Regular School	4 673	70.5	13.5
Non-adult in School	*4 116*	*70.8*	*13.5*
Adult in School	*557*	*68.4*	*13.2*
Non-adult Sch. Mk. Fwd.	108	65.7	14.5
Adult Sch. Mk. Fwd.	10	73.8	12.5

Table 11-21
Physics 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Total Score (%)		Written-Response Raw Score*		Multiple-Choice Raw Score**	
		Avg.	S.D.***	Avg.	S.D.	Avg.	S.D.
Regular School	4 673	66.3	16.5	9.5	4.8	36.9	7.5
Non-adult in School	*4 116*	*66.7*	*16.6*	*9.7*	*4.9*	*37.0*	*7.6*
Adult in School	*557*	*63.7*	*15.5*	*8.4*	*4.4*	*36.1*	*7.3*
Non-adult Sch. Mk. Fwd.	108	54.8	18.6	6.5	5.0	31.8	9.0
Adult Sch. Mk. Fwd.	10	55.4	19.3	6.4	4.7	32.1	9.5
Adult Challenging	61	51.8	20.4	6.3	5.1	29.9	10.0
Non-adult No Sch. Mk.	17	58.8	18.6	7.4	5.4	33.8	8.8

*Maximum written-response raw score is 21 marks
**Maximum multiple-choice raw score is 49 marks
***Standard Deviation

Tables 11-22 and 11-23, page 106, summarize the preceding tables in this section. The largest subgroup (Non-adult Regular School) is used as the basis for comparison among groups. Students without mature status and with current school-awarded marks represent the typical school situation. The difference between the average for this subgroup and the average for each other subgroup is given in order to aid comparisons of the achievement of the subgroups.

Comparisons between courses should be made cautiously. The figures presented have been adjusted for variation in diploma examination difficulty by using differences from the base group average. However, the diploma examinations also differ in variability of scores (as measured by the standard deviation), and no adjustment has been made for this form of variation. The results are sufficiently precise for broad comparisons between subjects.

Social Studies 30 had a smaller proportion of students with mature status, 6.9%, than the other subjects, which ranged from 12.2% to 14.4% of the regular school population.

Typically, subgroups other than the base group (Non-adult Regular School) had lower average achievement in both school-awarded marks and diploma examination marks. A notable exception was the school-awarded mark for adult regular school students, which was higher than the base group in three subjects: English 33, Mathematics 30, and Biology 30. The only other exceptions for school-awarded marks were adult students with school-awarded marks brought forward in Physics 30, and non-adult students with school-awarded marks brought forward in English 30.

Subgroup differences in average examination marks showed that both non-adult and adult students with school-awarded marks brought forward received markedly lower diploma examination marks, on the average, than the base group. This result is likely due to the large number of students in these subgroups who are attempting to raise their diploma examination marks from earlier writings. Students whose original marks were satisfactory do not rewrite the examination.

Adults with current school-awarded marks were above the base group average for diploma examination marks in English 33 and Biology 30, just as they were for school-awarded marks.

Adults challenging the diploma examination had lower average marks than the base group in all courses except English 33, where their average was 5.0% higher.

Non-adult students without school-awarded marks are relatively uncommon. These students were below the base group average for all subjects.

Table 11-22
Population Subgroup Summary
Mature Status and School-Awarded Mark Average Differences

Subject	% Mature	Difference From Regular Non-adult Average		
		Adult Regular School-Awarded Mark	Non-adult School-Awarded Mark Brought Forward	Adult School-Awarded Mark Brought Forward
English 30	12.6	-1.4	0.5	-4.2
English 33	12.2	4.1	-8.5	-2.0
Social Studies 30	6.9	-0.7	-8.9	-4.7
Mathematics 30	14.4	0.8	-3.5	-4.1
Biology 30	12.3	2.6	-8.7	-6.4
Chemistry 30	12.7	-0.2	-3.1	-5.9
Physics 30	12.9	-2.4	-5.1	3.0

Table 11-23
Population Subgroup Summary
Diploma Examination Mark Average Differences

Subject	Difference From Regular Non-adult Average				
	Adult Regular School-Awarded Mark	School-Awarded Mark Brought Forward		No School-Awarded Mark	
		Non-adult	Adult	Non-adult	Adult
English 30	-3.4	- 4.5	-15.2	- 5.7	- 6.5
English 33	2.1	-12.6	-18.9	- 1.6	5.0
Social Studies 30	-2.5	-15.9	-12.6	- 2.3	- 8.3
Mathematics 30	-1.9	- 9.8	-15.2	-13.4	-14.7
Biology 30	0.4	-17.0	-19.4	-15.1	- 5.4
Chemistry 30	-2.3	-10.8	-15.3	-12.9	-11.7
Physics 30	-3.0	-11.9	-11.3	- 7.9	-14.9

APPENDIX A: GUIDELINES FOR INTERPRETING AND USING THE RESULTS OF THE DIPLOMA EXAMINATIONS

USE OF THE REPORTS

In addition to this *Provincial Report*, superintendents and principals receive a confidential report of results achieved by the students in their jurisdictions or schools. Superintendents may also request similar reports for instructional groups within the school jurisdiction.

Educators in each jurisdiction are encouraged to study the examination results carefully and use them to determine the strengths and weaknesses of their program and resources.

The jurisdiction, school, and instructional reports may be used to help

- evaluate educational programs in each subject;
- improve the quality of educational programs;
- identify the strengths and weaknesses of the individual student, school, and jurisdiction by comparing their results with provincial results.

The reports are *not* intended to be used as the basis for

- evaluating teacher performance, or
- comparing performance between or among schools.

Administrators in each jurisdiction should apply separate locally developed teacher, school, and school system evaluation policies to the tasks of evaluating teacher and school performance.

The information provided in the reports is factual regarding *what* has happened. The interpretation of this information involves many complex considerations of the factors and variables that contribute to achievement.

FACTORS LIMITING THE INTERPRETATION OF EXAMINATION RESULTS

Educators who are interpreting diploma examination results must take into account the following limitations:

1. School-awarded marks and diploma examination marks are complementary measures. The purpose of the examination is to provide a common measure of achievement for students throughout the province. School-awarded marks should reflect *all* important aspects of learning in a course, including those that cannot be measured by time-limited paper and pencil tests. Therefore, differences are to be expected between a student's school-awarded mark and that student's diploma examination mark in a subject. Any comparisons of the two marks should be restricted to group statistics for groups of reasonable size and should be made with full knowledge of the differences between the two measures.

2. The differences between provincial results and local results are affected by jurisdiction, school, and group size, as well as by other factors.

3. Blended mark distributions *cannot* be directly compared to school-awarded mark distributions or to diploma examination mark distributions.

4. Factors affecting student selection of diploma examination courses vary from school to school. These factors must be considered when comparing school or jurisdiction marks with provincial marks:

   - Some schools may have a limited selection of courses. Students with weak academic records who, in other schools, would have selected nonexamination courses will find it necessary to take diploma examination courses for credits.
   - Some schools may have a policy of encouraging students to challenge any diploma examination course, which results in a higher than usual proportion of students taking those courses.
   - Some schools may have a policy of discouraging students with weak academic records from enrolling in particular diploma examination courses, which results in a lower than usual proportion of students taking those courses.

FACTORS THAT MAY AFFECT STUDENT ACHIEVEMENT

Many factors or variables may contribute to student achievement, some of which are:

1. Environment
   - community environment
   - school environment
   - socioeconomic background
   - family circumstances

2. Student Factors
   - ability
   - attitude
   - motivation
   - aspiration
   - academic background
   - learning style

3. Resources (availability and appropriateness)
   - programs of study
   - curriculum guides
   - resource materials
   - library services
   - current textbooks
   - references

4. Instruction
   - qualifications of teachers
   - teacher experience
   - professional development
   - teacher morale
   - teaching strategies
   - hours of instruction
   - staff turnover
   - amount of homework assigned
   - communication of teacher expectations

A SYSTEMATIC APPROACH FOR THE EFFECTIVE USE OF DIPLOMA EXAMINATION RESULTS

Diploma examination results can be used constructively as one means of improving the quality of education. A systematic use of these results would include the following steps:

1. Comparing test results for a school or instructional group with the provincial results. Be sure that your comparisons include the

   - total test score,
   - total multiple-choice and written-response scores,
   - subscale scores for multiple-choice and written-response questions (this current administration as well as results over time), and
   - individual multiple-choice and written-response question results.

2. Noting any patterns, anomalies, and/or interrelationships in the results.

3. Hypothesizing relationships between your observations and any of the factors above that may have had an effect on achievement.

4. Considering and implementing a plan that will help improve the quality of education for students.

AN ADMINISTRATIVE MODEL FOR THE EFFECTIVE USE OF EXAMINATION RESULTS

The following model may be useful for those who wish to develop a constructive system for interpreting diploma examination results. This model is based on work done by Medicine Hat School District #76.

Basic Principles

1. It is desirable and feasible to ask teachers and school administrators to take responsibility for analysing and using provincial test results.

2. The development of analyses statements and action plans by individual schools is a more productive and positive activity than generalizations made by an external source.

3. There are an identifiable group of factors that should be analysed and commented upon when reviewing the results of each test.

4. Subtest results are often more informative than are total test scores.

5. Generalizations should be based upon long-term data.

6. It is *not* necessarily desirable or productive to compare the marks of schools with one another.

7. Standardized tests measure a core of the program being taught. However, some skills and concepts not measured are worth teaching and learning.

8. Ensuring that there is an alignment between the objectives of the curriculum being taught and the test measures being used will increase the level of students' success.

9. Written reports, follow-up by means of written response, and occasional face-to-face meetings are useful means of ensuring that results are appropriately interpreted and used.

Suggested Content for Interpreting Individual School Results

1. Subject, name, grade level, and administration date of the examination(s)

2. Number of students who wrote the examination

3. Profile of students who wrote the examination:

   - noteworthy individual characteristics
   - general or group characteristics
   - previous performance in other years

4. Retention rates: the number of students enrolled in the grade or subject in the previous two years

5. School performance as compared with district and provincial averages

6. Present school performance as compared with previous years

7. Subtest results: a discussion of how students performed on each of the subtests; possible reasons for results; and recommended actions

8. Item analysis: those items where a significant number of students chose a response other than the correct answer; i.e., do the resources being used appropriately present the material being tested?

9. Program emphasis:

   - hours of instruction
   - skills and content emphasized or de-emphasized

10. Instructional practice:

    - methodology
    - curriculum fit
    - resources

11. Program objectives that are not measured by paper and pencil tests but that are worth teaching

12. Recommendations for next year: a listing that describes those actions that should continue to occur, should be enhanced, or should be changed

13. Summary report: general concluding comments regarding the analysis, report, examination, and recommendations

14. Name and signature of teacher or department head and principal

Suggested Procedures for Reporting

1. Teachers, department heads, and/or principals analyse and prepare a written report about each administration of a diploma examination.

2. Principals review and sign the report.

3. The report is shared with central office supervisory personnel.

4. The appropriate central office supervisory personnel prepare a written response to the report and send copies of the response to the teacher, department head, and principal.

5. If possible, all involved staff meet to discuss the report and the response.

6. When necessary or desirable, a more immediate analysis of specific subtest scores may be requested for a specific class, grade, school, or examination.

7. A sampling of the reports will be shared with the Education/ Personnel Committee of the board.

8. All reports will be used as an additional means of recognizing the quality of instruction being delivered to students. The analysis will be used to improve the program being offered and maximize the opportunities for students to be successful.

9. Where results are significantly different from those expected by the school staff, consideration should be given to arrange for a program evaluation that would measure such things as the variance between the program being offered and the specifications for an individual examination.

10. The report for the January and June administrations will include comprehensive retention rates for three years of the program.

APPENDIX B:
STANDARDS FOR DIPLOMA EXAMINATIONS

Standards used for awarding A, B, C, and F grades for all diploma examination subjects are based on *final blended* marks. Scores from the diploma examinations contribute 50% of each student's final grade; the other 50% is provided by the school. Both marks are based on the expectations set in the course of studies.

The ranges of the *final blended* marks for the four letter grades are as follows:

Grade	Final Blended Mark
A	80-100%
B	65-79%
C	50-64%
F	0-49%

During the marking of the diploma examinations, standard-setting procedures are carried out by a representative sample of teachers from across Alberta who are currently teaching the course being examined. Each item on the examination is reviewed in relation to the standards communicated in the course of studies, in order to determine what score is an acceptable level and what score is an outstanding level of achievement. The results are reviewed and compared with the distribution of the letter grades obtained from students' marks from previous administrations.

The marks awarded in June 1989 were consistent with expectations. The examinations were neither too easy nor too difficult. Therefore, no adjustments of marks were necessary.

APPENDIX C:
DIPLOMA EXAMINATION DEVELOPMENT PROCESS

The staff of the Student Evaluation and Records Branch gives great care and attention to the development and marking of all diploma examinations in order to ensure that students' marks on diploma examinations are fair and equitable measures of their achievement.

Many individuals work with the professional staff from the Student Evaluation and Records Branch in the complex process of developing diploma examinations. These include classroom teachers, school and jurisdiction administrators, and representatives from post-secondary institutions, the Curriculum Design Branch, Language Services Branch, and Regional Offices of Education.

The examination development process follows the phases listed below:

1. PLANNING
2. APPROVING EXAMINATION BLUEPRINTS
3. DEVELOPING EXAMINATION QUESTIONS
4. CONSTRUCTING AND ADMINISTERING FIELD TESTS
5. ANALYSING AND REVISING QUESTIONS
6. CONSTRUCTING THE EXAMINATIONS
7. APPROVING THE EXAMINATIONS
8. PRINTING AND ADMINISTERING THE EXAMINATIONS
9. MARKING THE EXAMINATIONS
10. ANALYSING AND REPORTING THE RESULTS

It takes approximately 18 months to complete the development of a diploma examination.

1. PLANNING

The first step in the planning phase for development of a diploma examination is the preparation, under the direction of the Curriculum Design Branch, of specifications based on the goals and objectives of the curriculum for each subject.

Examination developers in each diploma examination subject area then prepare an interim examination blueprint (an overall plan used to guide the development of an examination). If a diploma examination is undergoing extensive revision because of curricular change, or if a new examination is to be developed, an advisory committee of teachers and subject consultants will contribute to decisions about the emphasis and design of the examination.

Questions that must be addressed by examination developers and advisory committees, as examinations are designed and blueprints are drafted, include:

- What knowledge and skills can students be expected to possess?
- How can the various parts of the curriculum best be tested?
- What should be the weighting for each part of the curriculum that is tested?
- How long and how demanding should the examination be?
- What format will produce the most valid results?
- What types of questions will be most valid and reliable? (multiple choice, short answer, extended written response?)
- How should the examination be organized in order to produce valid and reliable results?
- How will students' responses be scored? What will be the criteria for scoring?
- How should the results be reported?
- Who will receive the results?

In order to ensure that each examination is a fair and equitable measure of students' accomplishments in the course, and to ensure that results will be meaningful and reliable, examination developers incorporate statistical as well as curricular standards into the examination design.

Statistical standards include projected examination means, range of question difficulty, and requirements for reporting. For example, the mean of each diploma examination has been set at 65 per cent. This is the mid-point between chance selection (25 per cent) and perfection (100 per cent) rounded off to the nearest five per cent. The range of difficulty of multiple-choice questions is expected to vary from 30 per cent to 85 per cent to ensure that students with varying ability levels are challenged. Each dimension of the curriculum for which results are reported must contain at least six questions if the results are to be meaningful.

2. APPROVING EXAMINATION BLUEPRINTS

Once examination developers and their advisory committees develop an examination design and blueprint including criteria for scoring written response, the proposed design is reviewed by a committee of Alberta Education personnel representing Regional Offices of Education, the Curriculum Design Branch (or Language Services Branch), and the Student Evaluation and Records Branch.

The blueprint and design recommended by the Alberta Education committee are then reviewed by an Examination Review Committee that consists of representatives nominated by the Alberta Teachers' Association, the Conference of Alberta School Superintendents, the Universities Co-ordinating Council, the Public Colleges of Alberta, and Alberta Education. This committee makes recommendations regarding the examination design to the Director of the Student Evaluation and Records Branch.

3. DEVELOPING EXAMINATION QUESTIONS

Following approval of the examination design, format, and blueprints, examination developers plan for question development. On the recommendations of superintendents, classroom teachers from across the province are selected to work on question development committees chaired by examination developers from the Student Evaluation and Records Branch.

Teachers serving on question development committees receive the necessary training regarding technical principles of question construction from the professional examination development staff of the Student Evaluation and Records Branch. The teacher committees develop questions that meet the curricular and technical standards incorporated in the examination design and blueprints, and that will fairly test the skills and concepts that students can be expected to have acquired.

Questions developed in committee are then carefully screened, edited, and revised so that all blueprint requirements and technical standards are met. At this point, copyright approval is sought for testing materials such as literary selections, cartoons, graphs, maps, charts, data sets, etc.

4. CONSTRUCTING AND ADMINISTERING FIELD TESTS

Examination developers at the Student Evaluation and Records Branch construct field tests containing questions developed by teacher committees. Each field test is carefully edited and revised in order to ensure technical and curricular validity and faithfulness to the examination blueprint.

School jurisdiction personnel grant permission for the administration of field tests to students in their systems in January and/or June of each school year.

Based on the geographic and demographic variables expected for the total population that will write a given diploma examination, the Student Evaluation and Records Branch field testing administration staff selects a minimum sample of 250 students to write each field test. Field tests are administered only to students who are nearing completion of the diploma examination subject being tested so that their performances on the field test will be predictive of the performances of students writing the diploma examination.

Student Evaluation and Records Branch professional staff members administer the field tests under secured examination conditions. This procedure allows examination developers to receive first-hand information from teachers and students about examination questions and formats. As well, the procedure ensures test security and uniform administration conditions so that statistical results can be considered reliable.

Teachers whose classes participate in field testing comment on:

- level of difficulty of questions
- curricular validity
- appropriateness of questions, data sets, reading selections, format

- problems with questions, stimulus material, art work
- clarity of instructions
- correspondence between questions and the way in which a concept is taught

Students are also encouraged to discuss the field test with the field test administrator.

All of the data - statistical and anecdotal - from field testing provided the examination developer with accurate and first-hand information that is used to ensure that the final form of each diploma examination is a valid and reliable measure of students' achievement.

5. ANALYSING AND REVISING QUESTIONS

Examination developers carefully analyze the statistical results and teacher comments for each field test to determine the need for additional field testing. Individual questions or question sets requiring changes are revised and submitted for further field testing. If changes are not feasible, questions are discarded.

Those questions and question sets that prove successful in field testing are considered for inclusion in a diploma examination.

6. CONSTRUCTING THE EXAMINATIONS

The diploma examinations are composed of questions and/or question sets that have proven to be valid in field testing. For each diploma subject, three parallel examinations are developed annually for administration in January, June, and August. The three examinations are designed to be parallel in form and equivalent in difficulty. Each examination is constructed according to the approved blueprint (i.e. each will have approximately the same number of questions testing a particular facet of the curriculum as specified by the blueprint). An information bulletin outlining the design, format, and marking criteria for each diploma examination subject is distributed to schools at the beginning of each school year. The information bulletins include changes from previous years' examinations, sample questions, and scoring guides.

Once a final form of a diploma examination is drafted, it receives extensive editing, proofreading, and technical checking.

7. APPROVING THE EXAMINATIONS

The examination developers from the Student Evaluation and Records Branch present the final form of each examination to the Alberta Education committee that represents the Curriculum Design or Language Services Branch and Regional Offices of Education for review and recommendations for improvement.

The recommendations of the Alberta Education committee are incorporated into any additional revisions that are necessary. The examination developers then present the examination to the Examination Review Committee that recommended approval of the examination blueprint in Phase Two of the Examination Development Process. The Examination Review Committee conducts a thorough review of the proposed examination, and recommends approval to the Director of the Student Evaluation and Records Branch.

8. PRINTING AND ADMINISTERING THE EXAMINATIONS

Following approval of the final form of a diploma examination, examination developers ensure completion of additional quality checks that include: editing, proofreading, validating of correct answers by a teacher committee, checking print quality of art work and illustrations, confirming precise match to the blueprint, and completing a final estimate of difficulty for each question.

Each examination is printed and then distributed to schools just prior to the administration dates.

Schools are responsible for ensuring the security of examinations prior to administration, and for ensuring that examinations are administered according to regulations. Each school receives extra copies of the January and June examinations for use in the school.

Administration of diploma examinations is scheduled annually in January, June, and August, and is conducted according to set regulations. Schedules and regulations are published in the *General Information Bulletin* that is distributed to schools each September. Additional copies are available for purchase from the Learning Resources Distributing Centre (telephone 427-2767). The August examinations are confidential and therefore remain secured.

Students who have been identified as having learning and/or physical disabilities may apply for special provisions for examination writing. Included in the special provisions available to such students are the following: brailled examinations, large-print examinations, tape-recorded examinations, additional writing time, use of a word processor, use of a tape-recorder for responses, and use of a sign-language translator. The complete policy for special provisions is printed in the *General Information Bulletin* and is available on request from the Student Evaluation and Records Branch (telephone 427-0010). Following administration, completed examinations are shipped (in accordance with security regulations) to Alberta Education in Edmonton for processing and marking.

9. MARKING THE EXAMINATIONS

Markers for the written response parts of the examinations are nominated by their superintendents and are selected on a proportional basis so that the percentage of markers selected from a geographic area is comparable to the percentage of papers from that area. In order to be selected for marking, a teacher must be currently teaching the subject he or she wishes to mark, must have taught the course for at least two years, and must possess a valid Alberta Teaching Certificate.

The written response parts of the diploma examinations are all marked centrally. The selected classroom teachers are trained in the marking procedures and are supervised during the marking session by the professional staff from the Student Evaluation and Records Branch.

All student and school identification is removed from the papers prior to the marking so that markers have no means of knowing the source of a paper. Written response papers in English 30, English 33, and Social Studies 30 receive three independent readings and are scored in several categories such as quality of language and expression, thought and detail, organization, etc. Students' scores are then calculated by machine. The median score on each dimension is the score awarded. Papers receive a fourth reading on those dimensions where the original three markers' scores are not sufficiently congruent.

Multiple-choice responses are machine scored. During the marking session, each multiple-choice examination is carefully reviewed by a group of at least 20 teachers of the subject under consideration. In this "standard-setting" review, the teachers assess the appropriateness of the standard of achievement built into the examinations.

10. ANALYSING AND REPORTING THE RESULTS

The statistical results of each examination and the recommendations of the standard setters are carefully analysed. The Examination Review Committee may be asked to review the results as well. Reports of local results in each subject are prepared for all school jurisdictions. The provincial results for each subject examined are presented in a provincial report that is distributed in April for the January administration and in September for the June administration. The provincial reports include guidelines for interpretation of results.

Individual student results are mailed about one month after the date on which the examinations were administered. Students who are dissatisfied with their results in any subject may request that their examination in that subject be rescored. The fee for rescoring is $20 per examination. The mark awarded after rescoring supersedes the initial mark.

The "DIPLOMA EXAMINATION DEVELOPMENT PROCESS" is also available in brochure format.

For more information, call the Associate Director of Examination Development for Language Arts and Social Studies or the Associate Director of Examination Development for Mathematics and Sciences at 427-2948.

DIPLOMA EXAMINATIONS PROGRAM
PROVINCIAL REPORT
QUESTIONNAIRE

The Student Evaluation and Records Branch strives to produce documents that will be useful to the educational community. The purpose of the following questionnaire is to garner your opinions about the *Provincial Report* so that these opinions can be considered when the content and format of the report are reviewed prior to January 1990.

Please take a moment to respond to the following questions. Then detach this sheet and send it to:

Mr. Michael Robinson
Assistant Director, Data Analysis and
Student Records Services
Student Evaluation and Records Branch
Alberta Education
11160 Jasper Avenue
Edmonton, Alberta T5K 0L2

USE OF THE REPORT

1. My present role is primarily that of

- teacher ☐ 1
- school administrator ☐ 2
- central office administrator ☐ 3
- school board member ☐ 4
- other (please specify)____________________________________

2. Please check the box beside the statement that applies to you.

I read the report, but I DID NOT use it to interpret the results attained by my students. ☐ 5

I read the report, and I used it to interpret the results attained by the students in

- my classroom ☐ 6
- my school ☐ 7
- my jurisdiction ☐ 8

3. Please respond to the following statement if you have checked boxes 6, 7, or 8 above.

I have made use of the results to alter the educational program offered in

- my classroom ☐ 9
- my school ☐ 10
- my jurisdiction ☐ 11

CONTENT OF THE REPORT

1. Please judge the usefulness of the information included in the various sections of the report by checking the appropriate boxes below.

	Very Useful	Adequate for Use	Of Some Use	Of No Use
Section 1: Summary of Results	☐ 12	☐ 13	☐ 14	☐ 15
Sections 2 to 8: Specific Diploma Examination Results	☐ 16	☐ 17	☐ 18	☐ 19
Section 9: Diploma Examination French Translation Results	☐ 20	☐ 21	☐ 22	☐ 23
Sections 10: Student Results by Gender	☐ 24	☐ 25	☐ 26	☐ 27
Section 11: Results for Population Subgroups	☐ 28	☐ 29	☐ 30	☐ 31

2. If you wish, please comment further on the content of the report in the space below.

FORMAT OF THE REPORT

1. Please judge the usefulness of the report's format by checking the appropriate boxes below.

	Very Useful	Adequate for Use	Of Some Use	Of No Use
Organization into Separate Sections	☐ 32	☐ 33	☐ 34	☐ 35
Single-Column Presentation of Text	☐ 36	☐ 37	☐ 38	☐ 39
Presentation of Graphs	☐ 40	☐ 41	☐ 42	☐ 43
Presentation of Tables	☐ 44	☐ 45	☐ 46	☐ 47
Blending of Information through Text, Graphs, and Tables	☐ 48	☐ 49	☐ 50	☐ 51

2. If you wish, please comment further on the format of the report in the space below.